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Report to the Chairman, Special Committee on Aging, U.S. Senate

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OLDER AMERICANS ACT

Funding Formula Could Better Reflect State Needs

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Health, Education, and
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The Honorable David Pryor
Chairman, Special Committee on Aging
United States Senate

Dear Mr. Chairman:

Because of your concern that current title III allocations do not fully reflect available indicators of states' needs, you asked us to examine the interstate funding formula of the current Older Americans Act of 1965 (OAA), as amended (P.L. 102-375). This formula allocated over $770 million in federal title III dollars in fiscal year 1993 among the 50 states and the District of Columbia (hereafter referred to as "the states"). Briefly, we have concluded that the Congress should modify the formula for distributing title III funds to better target federal funds to those portions of the elderly population who need it most due to the greatest social and economic need, as defined in the act.

During our review, we undertook to (1) develop equity standards that are appropriate to evaluating the allocation of title III assistance among states, (2) use these standards to create alternative formulas under which title III funds might be distributed more equitably among the states, (3) show how implementing each of the alternatives would redistribute funding among the states, and (4) explore ways of phasing in a new formula to moderate the degree of funding changes in a single year. (See app. I for further discussion of equity-based formulas.) More detailed discussions of our method for measuring social and economic needs are contained in appendix II; the cost of services in appendix III; and the capacity of states to fund services from their own resources in appendix IV.

Background

The Older Americans Act was enacted in 1965 and is administered by the Administration on Aging (AoA) in the Department of Health and Human Services (HHS). The act is intended to assist elderly Americans to live independently in their own communities by removing barriers to independent living and providing a continuum of care for vulnerable older individuals. OAA's title III provides grants for state and community-based programs to foster the development and implementation of comprehensive and coordinated systems to serve older individuals in their communities. Specifically, OAA's title III helps fund numerous community-based programs such as congregate and in-home meals, transportation,

information and referral, and housekeeping services. In fiscal year 1993, federal funding was over $770 million. Data on states' spending from their own revenues are very limited, but one recent study estimates that federal funds support approximately 35 percent of such services, with states, localities, and private sources funding the remaining 65 percent.[1]

Title III funds are allocated to the states through a statutory funding formula. The interstate formula is based on each state's proportion of the U.S. population over 60 years of age, but it also guarantees that each state will receive at least as much funding as it received in fiscal year 1987—the "hold harmless" provision—and that each state will receive at least one-half percent of the total funds available for distribution in that year—the "minimum funding" provision.[2]

This report focuses on the question of how the formula that distributes title III funds could be changed to better reflect the goal of serving the elderly with greater economic and social needs. Economic and social needs are important because, while title III distributes funds to states based on the proportion of older Americans in each state, the statute requires the states, when distributing these funds, to provide preferences to older individuals with greatest economic and social need, with particular attention to low-income minority individuals.[3] Thus, plans developed by the state agencies and approved by AoA, and plans developed by local areas and approved by states, must ensure that title III funds are distributed to those in greatest economic and social need.

In a January 1994 report on a related title III funding matter, we concluded that AoA does not implement the title III formula in accordance with the statute.[4] In our view, funding inequities are occurring because AoA incorrectly calculates title III state grants. Grant funds will be distributed differently if AoA revises its formula allocation calculations to comply with OAA provisions.

[1]State expenditure estimates are based on the National Association of Area Agencies on Aging, Staff Compensation Survey (Washington, D.C.: Sept. 1992).

[2]In fiscal year 1993, seven states and the District of Columbia—Alaska, Delaware, District of Columbia, Montana, North Dakota, South Dakota, Vermont, and Wyoming—received an allocation based on the one-half of 1 percent minimum funding provision.

[3]The statute defines "greatest economic need" as a need resulting from an income level at or below the poverty line. "Greatest social need" is defined as need caused by physical and mental disabilities; language barriers; and cultural, social, or geographical isolation that restricts an individual's ability to perform normal daily tasks or that threatens an individual's capacity to live independently.

[4]See Older Americans Act: Title III Funds Not Distributed According to Statute (GAO/HEHS-94-37, Jan. 18, 1994).

Results in Brief

The current OAA grant distribution formula fails to achieve "beneficiary equity," meaning that the state allocations are either too much or too little for purchasing comparable services for the at-risk elderly population. There are two reasons for this situation. First, the funding allocation formula, because it distributes money according to the number of people over 60 years of age in a state, does not take into account the greater incidence in some states of social and economic dependence among certain at-risk segments of the elderly population—namely, the very old, the poor, minorities, and females. States may have roughly the same-sized populations over 60, but have significantly different-sized at-risk elderly populations.

A second reason that the current formula does not allow states to purchase comparable services for the elderly is that the formula does not recognize differences among states in the costs of purchasing services. Cost differences are caused by differences in the cost of personnel, office space, and materials used to deliver title III services. At this time, states with roughly equal-sized populations over 60 get about the same allocations, even though some of the states may face significantly higher costs of providing services.

The current OAA formula also does not achieve taxpayer equity. States with roughly the same-sized populations, but with different financial resources, get about the same allocations. Thus, poorer states would have to impose higher tax burdens to raise sufficient "own source" funds to provide, when combined with the OAA grant monies, comparable financing of state services for the elderly.

It is possible to develop a formula for distributing title III funds that would reflect the equity standards we considered. However, a formula cannot fully achieve both beneficiary equity and taxpayer equity standards at the same time. This is because the states that would receive the most funding under the beneficiary equity standard are not the same states that would receive the most funding under the taxpayer equity standard. Consequently, we cannot recommend a single formula because the choice of a particular formula depends on congressional policymakers' judgments about whether beneficiary equity or taxpayer equity should be emphasized.

To assist in congressional deliberations, we present six options for distributing funds that we believe reflect the full range of possible formulas based on the beneficiary and taxpayer equity standards. All

options target more funding to states with high concentrations of the elderly population, especially the at-risk segments of the elderly population. Additionally, all options continue to reflect the act's "hold harmless" and one-half percent "minimum funding" levels. The range of alternatives should enable the Congress to select an option that best reflects the equity standard it believes should be emphasized.

Changing the method of distributing title III funding to improve equity could potentially disrupt the administration of state programs because funding changes could be substantial for some states. Therefore, we suggest that a new formula be phased in over a multiyear period in order to allow states to gradually adjust to new funding levels. Under this method, the proportion of title III funds distributed would be gradually transferred from the existing allocation formula to a new formula.

Current OAA Funding Allocations Do Not Achieve Beneficiary Equity

The current distribution of federal aid is based on the number of elderly residents in each state.[5] However, this method fails to achieve beneficiary equity because some states have a higher percentage of their elderly populations who experience impairments to independent living and for whom the cost of providing services is greater. Since the title III formula does not compensate for these variations in states' needs, federal aid currently purchases services per person in need that are well above the national average in some states and substantially below average in others. For example, under the current formula, Alaska is able to purchase an average service level per person-in-need with its federal aid that is over five times above the national average. In contrast, Florida's grant is only able to purchase services that are 11 percent below average. Overall, 16 states differ from the national average by more than $\pm$10 percent.

Data showing funding inequities for the states, based on the beneficiary equity criterion, are listed in table V.1 in appendix V.

States Differ in the Concentration of High-Risk Individuals

The current method of distributing title III funding does not take into account those portions of the elderly population most at risk of experiencing social and economic barriers to independent living. This means that states with low concentrations of the elderly most at risk are overfunded, and states with high concentrations are underfunded.

[5]Except for states subject to the one-half percent minimum of the total appropriation, which receive more.

The current formula implicitly assumes that the incidence of impediments to an independent lifestyle are the same in every state. Yet, states differ in the concentration of high-risk individuals. We estimate that, nationwide, approximately 25 percent of the noninstitutionalized population over age 65 experiences mobility and self-care limitations. However, this percentage ranges from a low of about 21 percent in Nevada to a high of over 29 percent in the District of Columbia.

Our review of the research literature on elderly dependence reveals a higher incidence of mobility and self-care limitations among population subgroups: minorities, the very old (i.e., individuals over 80 years of age and especially over 85 years), the poor, and females. Our analysis shows that members of minority groups and individuals in the oldest age groups are the most important predictors of a state's incidence of mobility and self-care limitations. The number of elderly in poverty and the number of females also help predict a state's incidence rate.

Appendix II explains how we identified age, sex, minority status, and poverty as high-risk population groups. How each of these factors should be weighted to reflect social and economic barriers to independent living is reported in table II.4.

States Face Differing Costs in Providing Title III Services

The current interstate funding formula also does not take into account the sometimes substantial differences in service costs from state to state. Consequently, federal grants purchase fewer services for elderly populations in states that face higher costs of providing services. Although cost differences (personnel, office space, and supplies used in the process of providing services to the elderly) are difficult to measure, we estimate that the costs of providing title III-related services range from approximately 31 percent above the national average in Alaska to approximately 11 percent below the national average in North Dakota.

See appendix III for a more detailed discussion of how cost differences are measured.

Current OAA Funding Allocations Do Not Achieve Taxpayer Equity

Because the current title III formula does not take into consideration states' varying financial capacity to fund services from their own resources, the allocation method also fails to achieve taxpayer equity. The key to understanding this concept is knowing that states also spend their own dollars on the elderly, with OAA grant monies supplementing state

funds. When the two sources of funds are considered, it is seen that poorer states would have to impose a higher tax burden on state residents to produce enough additional state revenues (when combined with the federal OAA funds) to finance an average level of services.

States' abilities to finance their share of elderly services (broadly measured by residents' income) vary widely—from 340 percent above the national average in Alaska, to 32 percent below average in West Virginia. When states' tax capacity differences are considered in conjunction with differences in states' at-risk populations and the cost of delivering services, we find that state tax burdens would have to vary greatly in order to fund comparable services. For example, Alaska's and Wyoming's title III funding is currently high enough that they are able to finance a national average basket of OAA services without having to contribute any state resources. In Arkansas and Mississippi, however, state taxpayers would have to expend a tax effort that is as much as 60 percent above the national average in order to finance a national average basket of services. Overall, the tax burden of 46 states would differ from the national average by more than ±10 percent, while only 5 states are within ±10 percent of the national average.

Appendix IV provides a more detailed explanation of the taxpayer equity concept. Differences in state taxpayer burdens for all states are shown in appendix V in table V.2.

Several Approaches Exist That Would Improve Equity in Fund Distribution

An appropriately redesigned title III formula could improve equity from the standpoint of either providing funds sufficient to purchase comparable services in all states (beneficiary equity), or by providing funds sufficient to enable all states to finance comparable services with comparable burdens on state taxpayers (taxpayer equity). We designed formulas that would achieve each standard separately in order to demonstrate the range of possible equity approaches. We also developed several options designed to reflect the trade-off between each standard ("balanced equity" options). In total, six different formula options were developed. We believe they reflect a wide range of possibilities that would improve equity.

Table 1 summarizes the effects that our six formula alternatives would have on states' funding amounts.[6] The number of states that would receive increased funding ranges from as few as 12 states under the beneficiary equity option, to as many as 25 states under option #5. The alternatives

[6]The effect on individual state funding amounts is shown in table VI.4.

differ dramatically in terms of the percentage of title III dollars they would redistribute, ranging from 2.8 percent under the beneficiary equity option, to 11.3 percent under the taxpayer equity option.

Table 1: GAO-Proposed Alternative Formula Allocations Under the Older Americans Act

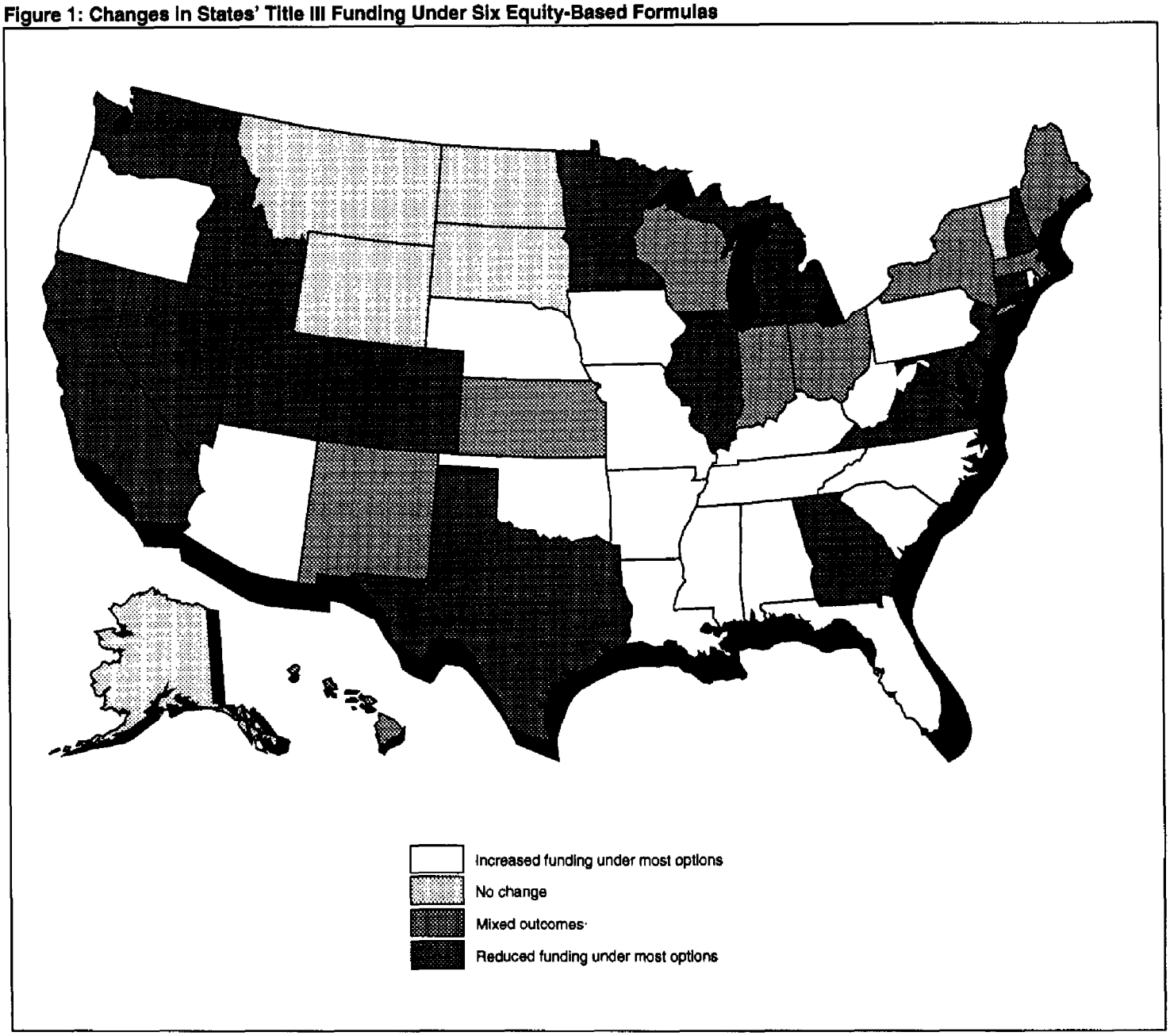
	Beneficiary equity	Taxpayer equity	Balanced equity			
Formula #	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**
Funds redistributed						
Amount (in millions)	$21.1	$85.9	$59.7	$83.8	$66.4	$50.8
Percent	2.8%	11.3%	7.9%	11.0%	8.8%	6.7%
States affected						
Number increasing	12	23	22	24	25	24
Number decreasing	31	20	21	19	18	19
Number no change	8	8	8	8	8	8

In general, the formula options based on the beneficiary and taxpayer equity standards redistribute funding from larger to medium-sized states and from higher- to lower-income states. Small states tend not to be affected because under all formula options they receive the guaranteed 0.5 percent of the total appropriations. Also, the formula options we developed do not attempt to calculate grants for the U.S. insular areas. The data necessary to reflect the equity standards we used are not available for these jurisdictions. For our analysis, we assumed the insular areas will continue to receive the same percentage share of the total appropriations that they receive under current law.

Some States Are Consistently Underfunded Relative to the Equity Standards Considered

In reviewing the options, we identified 18 states that are consistently disadvantaged under the current formula. These are states that would receive more funding under at least five of the six options we considered. Similarly, there are 16 states that consistently receive more funding than what would be indicated by our indicators of need. Another eight states would be unaffected by any formula change because they are subject to the minimum funding guarantee embodied in current law. The funding impact on the remaining states varies across the six options. The geographic pattern of how states are affected is reflected in figure 1.

Figure 1: Changes in States' Title III Funding Under Six Equity-Based Formulas



Providing a Transition

If a new formula were to be adopted, it could produce significant changes in funding for some states. As a means of reducing the disruption in administration of the program in these states, a new formula could be

phased in over a period of years. We illustrate in table VII.1, on a state-by-state basis, one method of phasing in a new formula. This method would shift funding from the current formula to a new formula over a 5-year period.

Recommendation to the Congress

To better ensure that the distribution of title III funds is based on economic and social indicators of need, we recommend that the Congress improve the Older Americans Act's interstate funding formula to better reflect the goal of helping the elderly maintain an independent lifestyle. This goal could be achieved by adopting a formula, to be implemented over a multiyear period, for distributing title III funds that reflects state needs and that specifically takes into account the issues of beneficiary and taxpayer equity.

In its deliberations to improve the fairness in the distribution of title III funds, the Congress may wish to consider the six allocation formulas we developed. Each formula option would improve the current title III funding process by permitting all states to finance comparable services for their respective elderly populations experiencing barriers to independent living.

Agency Comments and Our Evaluation

In its December 22, 1993, review of a draft of this report, HHS did not offer comments on the specific formula options we put forward for congressional consideration because it reviewed them as policy issues addressed to the Congress and not to AoA or HHS officials. HHS did, however, comment on the data sources we used to reflect state differences in (1) potential caseloads, (2) the cost of providing services, and (3) state funding capabilities (see app. VIII for comments from HHS).

HHS believes that funding formulas should be based on data that are reliable, from independent (preferably federal) sources, and regularly updated. In HHS's view, some of the data elements we used in our formula options do not meet these criteria. We agree with HHS's criteria but disagree with its conclusion. In fact, the data we used in our formula options are reliable statistical measures collected by federal sources—the Bureau of the Census, the Labor Department's Bureau of Labor Statistics (BLS), the National Center for Health Statistics, the Department of Housing and Urban Development, and the Department of the Treasury—and they can be periodically updated.

In regard to measuring potential caseloads, HHS notes that our measure is derived from studies that examine the relationship between Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL)[7] and demographic factors such as age, sex, race, and poverty. HHS raised the issue that because these studies rely on surveys conducted in the mid-1980s, subsequent demographic trends "may" have rendered our caseload indicator invalid.

We believe HHS's concern on this issue is overly cautious. Our analysis identifies the very old, females, minorities, and the poor as experiencing greater disabilities in terms of being able to perform activities necessary to maintain independent lifestyles. These are the same population groups the Older Americans Act itself identifies as having high social and economic needs and instructs the states to use in allocating federal funds among substate service areas. Thus, our analysis serves to validate what is already embodied in the current program. Consequently, we believe our analysis sufficiently identifies the high-need groups within the over-60 population with the greatest social and economic needs. Although we believe our population measure reflects the intended populations in the act, we would endorse any measure adopted by AoA that further improves the accuracy and reliability of the formula's potential caseloads measure.

HHS also notes, as we did in our draft report, that the prevalence of ADL and IADL disabilities among various demographic groups may change over time. Each of the demographic factors (population by age group, minorities, the poor, and females) we used are obtainable from the Bureau of the Census and can be updated on a regular basis. Consequently, to the extent that a state's needy population changes because of the changing composition of these demographic groups, the formulas we have proposed for congressional consideration will reflect changing demographic trends, contrary to HHS's opinion.

Although HHS does not say so explicitly, it may be raising a concern about the weights we have placed on each of the demographic groups so that they reflect the geographic pattern of ADLs and IADLs. We recognized this concern in our report where we stated the view that the weights given the various demographic groups should be periodically reevaluated. Even if this reevaluation were done, however, we do not believe new data would contradict our findings of higher disability prevalence rates among the very old, poor, minorities, and females. For example, we believe it highly

[7]See app. II for a further description of Activities of Daily Living and Instrumental Activities of Daily Living.

unlikely that a more current study would find that the poor began to experience a lower prevalence of ADL and IADL disabilities than the nonpoor, thus invalidating the use of poverty as an indicator of potential caseload. At most, such an analysis would much more likely call for some marginal changes in the relative weights given each.

Finally, we would like to point out that the current interstate funding formula (using the general population aged 60 and over) does not reflect the high-need demographic groups identified in the act. Our review of the literature shows that there is a higher prevalence of ADL and IADL disabilities among individuals with the greatest social and economic needs. Therefore, HHS's concern regarding our need indicators is more appropriately a criticism of the current formula. In this regard, the current formula does not reflect changes in high-need populations both across states at a given point in time and over a period of years.

HHS also voiced its concern over the limitations of our method of measuring interstate service cost differences. However, HHS did not recognize that the current formula, by excluding a cost factor, implicitly assumes that there are no differences in the cost of providing OAA services across all states and that service cost differences do indeed exist. For example, the cost of food (which is over two-thirds of title III expenditures) is higher in Alaska and Hawaii than it is for the rest of the country. These service cost differences are reflected in other federal programs such as food stamp allocations. Additionally, BLS data presented in our report reveal that the labor costs for food preparation also differ across states.

Because we were unable to identify direct cost data or studies specifically on OAA services across all states, we used a methodology that we believe is reasonable and conservative. Assumptions were made to guard against overstating interstate cost differences. Our report fully discusses the assumptions we made in developing the cost index and its methodological limitations. In addition, we present formula options both with and without the cost index in order to present a full range of alternatives, should the Congress not want to adopt the cost index we developed. A similar cost measure is currently included in the formula distributing the Alcohol, Drug Abuse, and Mental Health Services block grant.

HHS also commented that our indicator of a state's capacity to fund program services from state sources (the Treasury Department's Total Taxable Resources (TTR)) may reflect a state's expenditures and efforts in

providing title III services. Unfortunately, HHS does not state the basis for its belief. In response, we can only point out that TTR in no way reflects a state's program choices or practices. This measure neither rewards nor penalizes a state's expenditures and program commitments. TTR reflects income received by state residents as well as nonresident income produced within the state and, therefore, potentially subject to state taxation. Fiscal capacity is included in our formula options so that the Congress can consider the equalization of tax burdens as an additional goal for the program. Fiscal capacity measures are already used in major federal funding programs such as Medicaid, Foster Care, and Vocational Education.

HHS also makes the observation that the issues addressed in this report regarding the federal formula are equally applicable to the formulas states must develop for allocating federal assistance among substate service areas. We agree and would point out that HHS is required by law to approve state formulas. Therefore, we believe that the equity criteria developed in this report can provide HHS with stronger criteria that would assist it in analyzing and approving state formulas for allocating title III funds among substate service areas.

Finally, HHS noted its disagreement with a recommendation in our recent report, Older Americans Act: Title III Funds Not Distributed According to Statute. In that report, we concluded that AoA does not correctly calculate state grants under the existing statute. In this report, we took the same position because it affected the way we implemented the equity criteria. We continue to believe AoA's allocation method is inconsistent with the act's basic requirement that the distribution of funds among the states be proportional to their elderly populations, except that no state is to get less than the minimum established by law. The distorting effects of AoA's existing allocation method are that states not affected by the statutory minimums receive unequal allocations per elderly person, and states with more rapidly growing populations are underfunded.

We did our work between January 1992 and November 1993 in accordance with generally accepted government auditing standards.

We will send copies of this report to appropriate congressional committees and subcommittees, the Secretary of HHS, and the Commissioner of AoA. Copies will also be made available to others on request.

If you or your staff have any questions about this report, please call me on (202) 512-7215, or contact Jerry Fastrup, Assistant Director, on (202) 512-7211. Other major contributors to this report are listed in appendix IX.

Sincerely yours,

Joseph F. Delfico

Joseph F. Delfico
Director, Income Security Issues

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Figures

Abbreviations

AoA	Administration on Aging
ADL	Activities of Daily Living
BLS	Bureau of Labor Statistics
GSP	Gross State Product
HHS	U.S. Department of Health and Human Services
IADL	Instrumental Activities of Daily Living
NCHS	National Center for Health Statistics
OAA	Older Americans Act
OAFP	Older Americans Federal Percentage
RTS	Representative Tax System
TTR	Total Taxable Resources
USDA	U.S. Department of Agriculture

Description of Equity-Based Formulas

To develop equity standards, we drew from economic and social science literature and previous GAO reports on federal formula grant programs (see Related GAO Products). Based on this review, we arrived at two useful standards. We call the first standard "beneficiary equity." It would distribute federal funds so that all states could purchase a comparable level of title III services under the Older Americans Act[1] for elderly persons at risk. This criterion means that dollars would be distributed according to two indicators: (1) the potential number of elderly persons in need, especially those with economic and social needs; and (2) the cost of providing title III services.

We call the second standard "taxpayer equity." It recognizes that states finance a significant percentage of benefits from state resources. This criterion therefore evaluates the distribution of federal funds from the vantage point of state taxpayers. Specifically, it considers the degree to which states are able to finance a comparable level of services with comparable burdens on state taxpayers. This second standard is broader than the first one, including the two indicators used in the first standard (the number of potential beneficiaries and the cost of services) plus a measure of each state's capacity to fund title III services from its own resources.

Implementing the first of these equity standards—beneficiary equity—requires that funds be distributed based on two possible factors: (1) potential caseloads, which reflect the size of the at-risk population, (those elderly most likely to need title III-type services) and (2) the cost of providing title III services (the cost of personnel, building space, and other materials necessary to deliver services to those in need). Implementing the second equity standard—taxpayer equity—builds upon the first standard's components of potential caseloads and service costs by adding a third component, namely, states' abilities to fund services from state financial resources.

The indicators used to represent potential caseloads are discussed in appendix II, the proxy for the cost of providing title III services is discussed in appendix III, and the indicators used to reflect states' abilities to fund title III-type services from state resources are discussed in appendix IV. Appendix V evaluates the current distribution of title III funding against these criteria, appendix VI presents several options for implementing these criteria, and appendix VII shows the funding effects of implementing a new formula over a 5-year transition period.

[1]Older Americans Act of 1965, as amended, P.L. 102-375, section 301.

In this appendix we describe how each of our two equity standards incorporates two of the need factors (potential caseloads and cost) and how the taxpayer equity standard adds the third factor (financing capacity). However, as noted earlier, both standards cannot be achieved at the same time. For example, if equal funding for elderly beneficiaries is provided, it means taxpayers in poorer states would have to bear higher tax burdens to finance the average level of benefits. Conversely, if state taxpayer burdens were equalized, wealthier states would receive less funding per beneficiary than poorer states. Because both equity standards cannot be fully achieved at the same time, we also describe formulas that trade off the two standards.

Description of the Beneficiary Equity Formula

The basic structure of a formula designed to achieve beneficiary equity is relatively simple:

Figure I.1: Beneficiary Equity Formula

$$\text{State Grant} = \alpha * \left(\text{Potential Caseload}\right) * \left(\text{Cost Index}\right)$$

Beneficiary equity only requires that state grants be proportional to the potential caseload the state must serve, adjusted to compensate for state differences in the cost of providing services. The term "α" represents a constant of proportionality and depends on the amount of funds to be distributed among the states and the size of potential caseloads.

Description of the Taxpayer Equity Formula

The basic structure of a taxpayer equity formula is also simple. It only requires that an indicator of states' abilities to fund program services from state resources be added to the beneficiary equity formula previously described. The state resources indicator is similar to the federal medical assistance percentage used to determine state reimbursement rates under the Medicaid program. The difference is that the state resources indicator is based on need indicators applicable to title III needs rather than the needs relevant to the Medicaid program. We therefore refer to this factor

as the Older Americans Federal Percentage (OAFP).[2] A taxpayer equity formula would take the following form:

Figure I.2: Taxpayer Equity Formula

$$\text{State Grant} = \alpha' * \left(\text{Potential Caseload}\right) * \left(\text{Cost Index}\right) * \left(\text{Older Americans Federal Percentage}\right)$$

In a taxpayer equity formula, the constant of proportionality, " α," can be interpreted as the national average level of services measured in real dollars per caseload unit.

Determination of State OAFPs

OAFP represents the share of a state's expenditure needs (i.e., the dollars needed to fund an average basket of title III services) that is to be funded by both the federal grant and state dollars. To equalize state taxpayer burdens under title III, this percentage must be higher in poor states and lower in richer states according to the following formula:

Figure I.3: Older Americans Federal Percentage

$$\left(\text{Older Americans Federal Percentage}\right) = 1.0 - 0.65 * \left(\text{State Resource Index}\right)$$

The proxy we used to measure state resources will be discussed in appendix IV. For our purposes here, it is only important to understand that the state resources index is an index number that is equal to 1.0 for the state whose taxable resources are equal to the national average; exceeds 1.0 for states with above average resources; and is less than 1.0 for states with below average resources.

[2]We describe later how this factor works in more detail.

The 0.65 weight attached to the state resource index is a parameter that determines what percentage of a state's expenditure need (the potential caseloads and cost factors that appear in fig. I.2) will be counted for formula purposes. For example, a state with average resources (i.e., a state resource index of 1.0) would have a federal percentage of 0.35. That is, 35 percent of the state's expenditure needs would be counted for formula purposes.[3]

To offset differences in state tax burdens, the weight on the state resources index (0.65 in fig. II.3) must be the same as the share of total program benefits financed from nonfederal resources.[4] Based on the limited data we were able to obtain, we estimate that approximately 65 percent of program services provided for the elderly are financed from nonfederal sources.[5] Consequently, we have used a value of 0.65 for the coefficient on state financing resources.

Description of the Balanced Equity Formula

A beneficiary equity formula would provide equal federal funding per beneficiary, but result in unequal taxpayer burdens across states. In contrast, the taxpayer equity formula would equalize state taxpayer burdens but result in unequal federal funding per beneficiary, with larger federal grants for states with fewer resources for funding program benefits. Another equity goal may be a middle ground, whereby differences in state taxpayer burdens are reduced but not totally eliminated and the unequal funding required to completely equalize state taxpayer burdens would be moderated. We refer to this equity goal as "balanced equity."

An allocation formula that will produce this result can be developed by introducing an additional parameter into the OAFP, defined in figure I.3. Introducing a fractional exponent ($0<\beta<1$) will move each state's OAFP closer to the national average value of 0.65. This step would have the effect of moderating the degree to which federal aid would be targeted to the poorer states, and conversely provide more funding in wealthier states than is necessary to equalize state taxpayer burdens.

[3]In the Medicaid program, the state resource index is given a weight of 0.45, which results in federal Medicaid equal to approximately 55 percent of total program benefits.

[4]See Maternal and Child Health: Block Grant Funds Should be Distributed More Equitably (GAO/HRD-92-5, Apr. 2, 1992), pp. 55-62, for a more complete discussion that demonstrates this point.

[5]Staff Compensation Survey, National Association of Area Agencies on Aging (Washington, D.C.: Sept. 1992).

The exponent "β" can be interpreted as a policy parameter. It controls the degree to which either the beneficiary equity or the taxpayer equity standard is achieved. If β=1, grants will be targeted to achieve full taxpayer equity. That is, all states will be able to finance the national average basket of title III services with comparable burdens on state taxpayers. If the exponent is set equal to zero, the OAFP reduces to a constant of 0.35 for all states, and the formula becomes identical to the beneficiary equity standard.[6] Consequently, choosing values for β between zero and 1 represents a balancing of full taxpayer equity and beneficiary equity. A formula with a β value close to zero will produce a distribution of grants very close to the beneficiary equity formula, and will reduce tax burden disparities to a limited degree. Alternatively, a value of β closer to 1 will largely, but not completely, eliminate tax burden disparities.[7]

A General Grant Allotment Formula

Based on this discussion, a general formula that encompasses both beneficiary and taxpayer equity, as well as various trade-offs between them, would take the following form:

Figure I.4: Grant Allotment Formula

$$\text{State Grant} = \alpha' * \left(\text{Potential Caseload}\right) * \left(\text{Cost Index}\right) * \left\{1.0 - 0.65 * \left(\text{State Resource Index}\right)^{\beta}\right\}$$

Beneficiary equity would be represented by a formula with β=0, taxpayer equity by a formula with β=1, and partial equity by a formula with $0<\beta<1$.

[6]Any number raised to the zero power is by definition equal to 1.0. Therefore, the expression in brackets reduces to 1 minus 0.65, or 0.35, which can be incorporated into the constant of proportionality α'

[7]A more complete discussion of partial taxpayer equity appears in appendix V of GAO's report on the formula used to distribute federal funding under the Maternal and Child Health program, GAO/HRD-92-5, April 2, 1992.

Indicators Used to Measure Potential Title III Caseloads

This appendix describes our method for estimating potential caseloads for title III services, the first factor in our general formula for calculating state grant amounts (see fig. II.1).

Figure II.1: Equity-Based Formula for Calculating State Grants—Potential Caseloads

$$\text{State Grant} = \alpha * \left(\text{Potential Caseload}\right) * \left(\text{Cost Index}\right) * \left\{1.0 - 0.65 * \left(\text{State Resource Index}\right)^{\beta}\right\}$$

Potential caseload represents the number of people who are potentially eligible to receive title III services. Our method of measurement is based on congressional intent as described in OAA and in previous congressional hearings focusing on improving title III targeting, as well as work in the fields of public finance and gerontology. We consulted the gerontology literature that was germane to the subject. We then described the chosen indicators and briefly compared them to others that were rejected.

Purposes of Title III Reflect Population's Needs

The purpose of the act specifies that title III grants are intended to

1. secure and maintain maximum independence and dignity,

2. remove individual and social barriers to economic personal independence for older individuals,

3. provide a continuum of care for vulnerable older individuals, and

4. secure the opportunity for older individuals to receive managed in-home and community-based long-term care services.

As a means of implementing these goals, targeting title III funds to high-need groups has been specified in the act since it was amended in 1978. States are required to consider states' populations of elderly in the "greatest economic and social need" when allocating funds to local service providers. The act defines "economic need" as "income level at or below the poverty threshold established by the Office of Management and Budget"; and "social need" as being " . . . caused by non-economic factors which include physical and mental disabilities, language barriers, cultural, social, or geographical isolation including that caused by racial or ethnic

status which restricts an individual's ability to perform normal daily tasks or which threatens such individual's capacity to live independently."[1]

Potential Caseloads Are Based on Impediments to Independent Living

In order to statistically represent the act's goals, we used two health-based measures of impediments to elderly independence—Activities of Daily Living and Instrumental Activities of Daily Living. They reflect physical and cognitive skills and independent living limitations and are consistent with the act's definition of needs. We believe that many impediments to independent daily living are ultimately connected with health status. Administration on Aging officials and a financial gerontology expert expressed concerns that this measure will not reflect those needs that are not health based, such as cultural isolation. However, they were unable to identify other statistical data that would reliably measure non-health-based causes of social isolation. We believe that this measure of elderly dependence represents the majority of the act's economic and noneconomic needs.

ADL measures a person's ability to perform "basic" daily activities, such as eating, bathing, dressing, and toileting. IADL includes activities such as handling personal finances, meal preparation, shopping, traveling, housework, using the telephone, and taking medication. IADL disabilities represent less severe dysfunctions. Taken together, ADLs and IADLs reflect a full range of activities necessary for independent living.

Two Sources of Information Considered

There are two basic sources of information for estimating the number of people with impediments to maintaining an independent living style: national surveys conducted by the National Center for Health Statistics (NCHS), and the 1990 census. We decided to base our estimates of need on the national surveys conducted by NCHS. The reasons we did not use indicators from the 1990 census are discussed in the following section.

NCHS Survey Is Based on Sound Statistical Procedures

The National Health Interview Survey's Supplement on Aging, developed and maintained by NCHS, is a comprehensive assessment of ADLs and IADLs.[2] The NCHS survey is an in-person, household survey of 16,148 persons age 55 and older. About 11,500 interviews were obtained for persons over 65.

[1]U.S.C. 42 sec. 3021(1) and 3022(20), (21).

[2]The following article reviews the various surveys made on ADLs. Joshua M. Wiener, Raymond J. Hanley, Robert Clark, and Joan F. Van Nostrand, "Measuring the Activities of Daily Living: Comparisons Across National Surveys," Journal of Gerontology: Social Sciences, Vol. 45, No. 6 (1990), pp. 229-37.

The NCHS survey includes a series of questions measuring a person's ability to perform various tasks. It also contains information on various health-related topics such as family structure, disability, and health service use. Each respondent is asked to classify his or her ADL limitations by the level of difficulty in performing them (e.g., "some," "a lot," "unable"). NCHS maintains and regularly updates this database.

The National Health Interview Survey's Supplement on Aging, however, does not provide data on the number of people with impediments to maintaining an independent living style across all states. In order to calculate the relative sizes of states' potential caseloads, we had to identify a study that used a reliable estimation technique to extrapolate NCHS data.

State Estimates of ADL/IADL Populations Are Available

The Interagency Forum on Aging-Related Statistics[3] and a study by Elston, Koch, and Weissert[4] estimate the population reporting difficulty in performing ADLs and IADLs across states. Both studies are based on National Health Interview Survey data. The Forum on Aging-Related Statistics uses two variables (age and sex) to predict the prevalence of ADL/IADL limitations among elderly individuals. It then applies this relationship (based on the national sample) on a state-by-state basis. The Elston, Koch, and Weissert study applies the same general method, but includes minority status and poverty, besides age and sex, to estimate both ADL and IADL populations.[5]

Using data from the 1990 census for age, sex, minority status, and poverty, we followed the method employed by the Elston, Koch, and Weissert study to develop current state-by-state estimates of the prevalence of ADL/IADL

[3]"Synthetic State Estimates of the Health of Older Persons: Synthetic Estimation of State Health Characteristics for the Population 65 Years of Age and Over," Interagency Forum on Aging-Related Statistics (Chicago: University of Illinois, Jan. 1992).

[4]Jennifer M. Elston, Gary G. Koch, and William G. Weissert, "Regression-Adjusted Small Area Estimates of Functional Dependency in the Non-institutionalized American Population Age 65 and Over," American Journal of Public Health, Vol. 81, No. 3 (Mar. 1991), pp. 335-43.

[5]The Elston, Koch, and Weissert study examined an extensive array of possible predictors of ADL/IADL dependency. It investigated such variables as (1) age, (2) gender, (3) race, (4) income, (5) poverty, (6) the number of nursing home and hospital beds, (7) the prevalence of physicians, (8) the percent of the poverty population covered by Medicaid, (9) mortality, (10) climate conditions, (11) rural/urban population, and (12) population density. It found that ADL and IADL dependency is strongly associated with four variables: minority status (white and nonwhite), five age groups (65 to 69, 70 to 74, 75 to 79, 80 to 84, and 85 and over), poverty, and gender (females and males). The other variables (hospital beds, mortality, etc.) did not provide any additional explanation of ADL/IADL dependency once the four major variables were taken into account. In summary, the four demographic variables (age, sex, minority status, and poverty) are strong predictors of ADL/IADL limitations to self-care and independence.

impediments. These estimates are shown in table II.1.[6] The first column reports the estimated number of elderly individuals with ADL/IADL impediments, column 2 reports the prevalence rate, and column 3 reports the prevalence rate expressed as a percentage of the national average rate.

Table II.1: State Populations, Prevalence Rates, and Indexes for ADL/IADL Dependency, 1990

	ADL + IADL		
States	Number of individuals	Prevalence rate	Index
Alabama	135,040	0.258	105.2
Alaska	4,894	0.219	89.1
Arizona	110,083	0.230	93.7
Arkansas	88,931	0.254	103.5
California	759,933	0.242	98.7
Colorado	78,658	0.239	97.3
Connecticut	107,883	0.242	98.6
Delaware	19,165	0.237	96.7
District of Columbia	22,840	0.293	119.5
Florida	560,909	0.237	96.4
Georgia	166,005	0.254	103.4
Hawaii	33,262	0.266	108.4
Idaho	28,439	0.235	95.5
Illinois	356,025	0.248	101.0
Indiana	169,462	0.243	99.2
Iowa	107,712	0.253	103.0
Kansas	86,600	0.253	103.0
Kentucky	115,194	0.247	100.5
Louisiana	121,268	0.259	105.3
Maine	40,036	0.245	99.8
Maryland	125,898	0.243	99.1
Massachusetts	202,621	0.247	100.8
Michigan	268,545	0.242	98.7
Minnesota	137,100	0.251	102.1
Mississippi	86,770	0.270	110.0
Missouri	181,558	0.253	103.1
Montana	25,348	0.238	97.0

(continued)

[6]Updating the Elston, Koch, and Weissert model assumes the relationship between ADL/IADL dependency and the demographic variables associated with ADL/IADLs remains stable over time. If the relationship does change, for example, the prevalence of ADL/IADL dependency of one subgroup diminishes or increases relative to another, the revised estimates will under- or overpredict ADL/IADLs across states.

States	ADL + IADL		
	Number of individuals	Prevalence rate	Index
Nebraska	56,813	0.255	103.8
Nevada	27,132	0.213	86.6
New Hampshire	30,115	0.241	98.1
New Jersey	247,865	0.240	97.8
New Mexico	39,015	0.239	97.5
New York	592,751	0.251	102.2
North Carolina	200,296	0.249	101.5
North Dakota	22,873	0.251	102.3
Ohio	340,646	0.242	98.6
Oklahoma	107,462	0.253	103.2
Oregon	92,860	0.237	96.7
Pennsylvania	440,570	0.241	98.1
Rhode Island	36,846	0.245	99.7
South Carolina	98,572	0.248	101.2
South Dakota	25,923	0.253	103.2
Tennessee	155,056	0.251	102.1
Texas	427,381	0.249	101.4
Utah	34,869	0.233	94.7
Vermont	16,185	0.245	99.7
Virginia	163,370	0.246	100.2
Washington	136,167	0.237	96.4
West Virginia	64,885	0.241	98.3
Wisconsin	159,677	0.245	99.9
Wyoming	11,065	0.234	95.5
U.S.	**7,668,575**	**0.245**	**1.0**

Our estimate of need, based on the prevalence rate of ADL/IADL impediments, shows that these rates vary across states by relatively small amounts. State prevalence rates range from a low of .213 in Nevada—13 percent below the national average—to as much as .293 in the District of Columbia—19.5 percent above the national rate. Forty-three states are within ±5 percent of the national average rate. The national rate of ADL/IADL dependence for the noninstitutionalized population over age 65 is estimated to be a rate of .245 of the over-65 population, shown in the last row of the table.

The method used by Elston, Koch, and Weissert is superior to previous studies for two basic reasons. First, the minority status and poverty

variables included in their analysis are specifically referenced in the act itself. Second, and more importantly, these variables were found to be important predictors of the prevalence of ADL/IADL disabilities. Additionally, AoA statistics on program participation show that minorities and low-income individuals participate at a higher proportionate rate than would be expected from their share of the general population.[7]

Census Data Rejected

We prefer the ADL/IADL measure based on the NCHS survey and the Elston, Koch, and Weissert method over the census' mobility and self-care measures for several reasons. First, the NCHS survey only applies to the noninstitutionalized population, whereas the census estimates are for the entire population,[8] institutionalized and noninstitutionalized. Second, the ADL/IADL measure is a more comprehensively defined measure for elderly dependency than the census measure. Third, NCHS collects the data using an interviewer, which improves the reliability that the respondent understands each question and, thus, improves the quality of his or her responses. In contrast, the Census Bureau collects its data through a self-reported questionnaire. Finally, the census' mobility and self-care data were collected for the first time in the 1990 census and may not be collected in the next census. As a consequence, at best, current mobility and self-care data may only be available once every 10 years, and, at worst, be unavailable for future years.

The ADL/IADL estimates obtained using the Elston, Koch, and Weissert method also have a major drawback, which is that these states' estimates are based on the relationship between the 1984 ADL/IADL populations and their socioeconomic characteristics. Our estimates for 1990 depend on the constancy of this relationship over time. However, we believe the relationship between socioeconomic characteristics and ADL/IADLs is reasonably stable and not subject to large change over time.

We also analyzed the Census data and found that the data do not appear to be consistent with previous research results. We analyzed the Census data to determine if the data are (1) similar to ADL/IADL estimates based on NCHS surveys and (2) consistent with previous research regarding the relationship between demographic characteristics and ADL/IADL

[7]"National Summary of State Program Performance Reports for Programs for the Elderly Authorized Under Title III of the Older Americans Act: Federal Fiscal Year 1990," Administration on Aging (Washington, D.C.).

[8]The census population excludes institutionalized inmates in prisons.

impediments. Our analysis of census data is described in further detail at the end of this appendix.

Determination of Weights for Demographic Factors Used to Measure Needs

The Elston, Koch, and Weissert method of estimating state ADL/IADL populations based on age, sex, minority status, and poverty cannot be readily incorporated into an allocation formula because of its complexity.[9] We therefore employed a simplified method that very nearly replicates the Elston, Koch, and Weissert state estimates. The result of our simplification is that estimates of each state's share of the ADL/IADL population can be expressed as a weighted sum of each state's respective shares of (1) five age groups, (2) female populations, (3) minority populations, and (4) poverty populations. Estimates of each state's share of need would be expressed in the form of the following formula:

Figure II.2: Formula for State Shares of ADL/IADL Populations

$$\text{State Share of ADL/IADL} = w_1 Pop_{80+} + w_2 Pop_{70\text{-}74} + w_3 Pop_{75\text{-}79} + w_4 Pop_{80\text{-}84} + w_5 Pop_{85+} + w_{Min} Minority + w_{Fem} Females + w_{pov} Poverty$$

where
- Pop_{80+} = state's share of the population 60 and over;
- $Pop_{70\text{-}74}$ = state's share of the population aged 70-74;
- $Pop_{75\text{-}79}$ = state's share of the population aged 75-79;
- $Pop_{80\text{-}84}$ = state's share of the population aged 80-84;
- Pop_{85+} = state's share of the population aged 85 and over;
- Minority = state's share of the nonwhite population 60 and over;
- Poverty = state's share of the elderly population in poverty;
- Females = state's share of the female population 60 and over; and
- w_i = the weight associated with the ith demographic need factor

[9]Its method of estimating ADL/IADLs requires (1) the solving of two nonlinear equations to estimate the 20 ADL/IADL prevalence rates and (2) the breaking down of the elderly population for the states into 20 subgroupings for each of the 50 states and the District of Columbia.

To determine the weight each factor should receive (i.e., w_i), we fit a regression model using estimates of ADL/IADLs based on the Elston, Koch, and Weissert methodology as the dependent variable and age, sex, poverty, and minority status as independent variables.

Before estimating the model, we first divided the equation in figure II.2 by each state's share of the over-60 population. Expressing each variable relative to its share of the over-60 population avoids the problem of multicolinearity among the regressors. State shares of each of the independent variables are likely to be highly correlated with one another since they all reflect the size of the state (e.g., California will always have a large percentage of each variable and Rhode Island a small percentage because of the difference in their sizes). Making this adjustment produces the following regression equation:

Figure II.3: Regression Equation for State's ADL/IADL Population

$$R_s = b + b_{70\text{-}74}\,Pop_{70\text{-}74} + b_{75\text{-}79}\,Pop_{75\text{-}79} + b_{80\text{-}84}\,Pop_{80\text{-}84} + b_{85+}\,Pop_{85+}$$
$$+ b_{Pov}\,Poverty + b_{Min}\,Minority + b_{Fem}\,Females$$

where
- R_s = index of the state's ADL/IADL dependency rate;
- $Pop_{70\text{-}74}$ = index of the population aged 70-74;
- $Pop_{75\text{-}79}$ = index of the population aged 75-79;
- $Pop_{80\text{-}84}$ = index of the population aged 80-84;
- Pop_{85+} = index of the population aged 85 and over;
- Minority = index of the nonwhite population 60 and over;
- Poverty = index of the elderly population in poverty;
- Females = index of the female population 60 and over;
- b = the intercept; and
- b_i = the regression coefficients for the independent variables.

The intercept, b, can be interpreted as the proportion of the index attributable to the population of white, nonpoor males aged 65 to 69. This fact can be seen by noting that the intercept is the value of the dependent variable when all independent variables in the model are equal to zero. That is, if there were no residents aged 70 and over, poor, nonwhites, or

females, the state's elderly population would be composed of only nonpoor, white males aged 65 to 69. Because the intercept has this interpretation, the population 65 to 69 is not explicitly included in the model to avoid double counting.

On the other hand, the regression coefficients for the variables represent the increase in weight for each of the subgroupings. So, for example, the coefficient for the 70- to 74-year age group, $b_{70\text{-}74}$, is the increase in weight over and above the weight for the 60 to 69 age group, represented by the intercept.

Data for each of the explanatory variables are shown in table II.2. States differ significantly with respect to some dependent elderly demographic groups, and very little with respect to others. For example, females and the percent of the population between 70 and 79 are more or less uniformly distributed across states, while minority populations are much more concentrated in some states than others. This fact can be seen by noting that females and the 70 to 79 age group have the smallest standard deviations (see top row of table II.2), while minority status has the largest.

Table II.2: Indexes of State Population, by Age, Poverty Status, Race, and Gender

	Age groups							
States	**65-69**	**70-74**	**75-79**	**80-84**	**85+**	**Poverty**	**Nonwhite**	**Female**
Standard deviation	7.9	3.0	3.8	8.6	15.5	39.1	129.4	3.6
Alabama	99.4	99.3	103.0	102.8	94.1	187.5	195.3	101.9
Alaska	133.0	103.5	83.0	68.6	56.7	59.4	229.3	88.4
Arizona	103.4	106.0	101.0	93.3	79.9	84.4	61.1	95.0
Arkansas	94.1	99.7	104.3	107.4	102.0	178.9	115.3	99.0
California	104.0	100.0	98.0	95.6	96.8	59.4	142.8	98.1
Colorado	104.3	98.8	95.8	96.7	101.5	85.9	51.5	98.4
Connecticut	97.3	101.6	100.0	98.5	106.9	56.3	44.3	101.1
Delaware	109.0	102.2	93.6	90.3	89.7	78.9	107.6	99.3
District of Columbia	98.6	99.0	102.7	99.8	102.2	134.4	635.5	105.9
Florida	96.7	103.6	104.6	102.0	89.9	84.4	58.4	96.0
Georgia	103.0	101.5	100.3	97.7	88.7	159.4	193.9	103.2
Hawaii	112.7	103.4	92.7	84.3	84.4	62.5	668.2	87.8
Idaho	96.8	102.4	103.2	102.1	95.3	89.8	15.5	94.5
Illinois	98.0	99.6	101.0	101.0	104.2	83.6	103.3	101.7
Indiana	100.3	98.8	98.8	100.0	104.5	84.4	54.5	101.4
Iowa	88.8	95.8	101.2	110.7	131.5	87.5	9.9	101.0

(continued)

States	Age groups					Poverty	Nonwhite	Female
	65-69	70-74	75-79	80-84	85+			
Kansas	91.5	95.0	100.7	111.4	125.1	93.8	40.6	100.5
Kentucky	99.9	98.1	100.8	102.2	100.7	160.9	55.1	100.9
Louisiana	102.7	99.3	99.5	99.8	94.4	188.3	226.4	101.1
Maine	96.1	97.5	99.0	106.2	113.2	109.4	3.7	100.5
Maryland	107.6	101.4	95.0	92.3	91.1	82.0	156.8	100.9
Massachusetts	95.1	99.0	99.9	103.6	114.2	73.4	33.5	103.5
Michigan	102.9	101.1	97.8	95.5	97.8	84.4	101.1	99.8
Minnesota	90.4	96.1	101.2	109.1	127.7	94.5	14.1	99.5
Mississippi	96.0	97.8	103.9	107.3	102.1	229.7	264.0	101.7
Missouri	94.3	95.4	101.8	109.6	114.8	115.6	69.2	101.6
Montana	94.3	104.2	102.6	100.9	101.7	97.7	23.0	94.9
Nebraska	88.7	93.9	101.2	113.9	132.8	95.3	21.1	100.3
Nevada	121.3	109.2	90.2	73.5	59.3	75.0	59.1	90.5
New Hampshire	98.2	99.1	98.0	103.3	107.8	79.7	4.7	100.5
New Jersey	101.9	102.2	99.6	96.1	93.9	66.4	87.5	101.0
New Mexico	105.1	101.0	99.3	95.0	88.5	128.9	114.8	94.9
New York	98.7	98.0	99.7	102.6	106.5	93.0	120.0	102.3
North Carolina	105.5	101.3	98.6	94.6	88.2	152.3	166.8	102.0
North Dakota	84.7	97.0	106.4	115.9	125.2	114.1	12.0	96.1
Ohio	102.4	100.5	97.5	97.1	99.5	83.6	74.7	101.2
Oklahoma	95.8	95.4	102.1	109.3	109.6	139.8	93.8	100.1
Oregon	97.0	101.4	102.4	100.5	100.6	78.9	23.2	96.8
Pennsylvania	99.8	102.4	100.8	98.1	95.3	82.8	62.2	101.6
Rhode Island	96.9	99.7	100.6	101.5	107.9	90.6	24.9	103.2
South Carolina	109.3	104.2	96.3	90.0	78.6	160.2	220.7	101.6
South Dakota	89.0	95.5	101.3	110.3	132.3	121.1	23.7	97.2
Tennessee	100.3	98.8	101.1	102.8	96.4	163.3	112.3	101.7
Texas	102.8	97.2	99.3	100.7	98.4	143.8	128.6	99.5
Utah	100.3	103.0	99.6	100.1	92.1	68.8	25.1	95.6
Vermont	96.3	97.2	98.9	104.9	115.3	96.9	3.3	100.1
Virginia	106.4	101.1	96.2	94.2	91.1	110.2	159.7	101.0
Washington	100.3	101.5	99.8	97.3	99.3	71.1	43.6	96.8
West Virginia	100.2	99.6	101.9	100.4	96.0	130.5	32.0	100.6
Wisconsin	92.7	97.9	102.9	106.4	115.7	71.1	21.4	99.2
Wyoming	102.9	99.7	98.5	97.2	97.8	83.6	25.7	95.6

Regression Results

The results of estimating the model are shown in table II.3. The R^2 for the regression model is 0.99, which indicates that the linear model very closely approximates the more complex model by Elston, Koch, and Weissert.[10] The regression coefficients have the expected positive signs for each of the variables.[11]

Table II.3: Regression Results for ADL/IADL State Population Estimates on State Demographic Variables

Independent variables	Regression coefficients	Beta coefficients
Intercept	0.30	
$Population_{70-74}$	0.03	0.02
$Population_{75-79}$	0.08	0.07
$Population_{80-84}$	0.09	0.17
$Population_{85+}$	0.15	0.49
Nonwhite	0.04	0.84
Poverty	0.03	0.20
Female	0.27	0.21

As stated earlier, the intercept is interpreted as that portion of the index attributed to the 65- to 69-year-old population. As the intercept term, this value is also the base upon which the values for the other subgroupings are calculated. That is, the coefficient for the 70- to 74-year-old population, 0.03, is added to the intercept (or base value) and can be interpreted as the "incremental" weight for nonpoor, white males aged 70 to 74. The regression coefficients for the remaining variables have similar interpretations, that is, they are incremental weights.

Using this model, the older age groups are given progressively greater weight in our estimate of potential caseloads. This result accords with the greater prevalence of ADL/IADL dependency in older age groups, as identified by Elston, Koch, and Weissert. Similarly, the weights for females, minorities, and the poor are arrived at in the same manner. The incremental weight given each indicator also accords with the results reported by Elston, Koch, and Weissert and is consistent with the act's guidance for states to target services to the poor and minorities because they are believed to experience a greater need for services.

[10]Higher values for the R^2 statistic indicate greater accuracy. The maximum value for the R^2 statistic is 1, which indicates perfect prediction.

[11]We do not report t-statistics for this model because this procedure is only identifying a simpler functional form to approximate the Elston, Koch, and Weissert model. Because these variables are statistically significant in their model, they, by definition, are significant variables in our simplified model.

By virtue of the relatively large coefficient on females in the model, one might conclude that this factor is the most important determinant of the potential caseload. However, this conclusion would be unwarranted. The reason is that the states differ very little in terms of the proportion of females in their total populations. So, even though the female coefficient is quite large compared to the other variables, the end result is that the female variable has little effect on state estimations of ADL/IADL dependency rates.

To determine the relative importance of each variable, we report the beta coefficient associated with each variable. This statistic takes the variance of each variable into account.[12] That is, the regression coefficient is adjusted for the amount of variation in the variable itself. By comparing beta coefficients, one can determine which variables have greater influence in estimating each state's dependency rate. The beta coefficients reported in table II.3 indicate that minority status (with a coefficient of 0.84) is the single most important variable in determining state dependency rates. The next most important variable is the population over 85, followed by females and poverty rates. The least important variables are the 70 to 74 and the 75 to 79 age groups.

The importance of taking the variability of each variable into account is best illustrated by comparing the coefficients of poverty and females. The regression coefficient for poverty is only 0.03 compared to 0.27 for females. However, since states differ very little in terms of the share of the females but significantly with respect to their poverty rates, both variables have about the same impact in determining state dependency rates.

Formula for Calculating Needs From Demographic Data

The estimated regression coefficients reported in table II.4 represent the weights needed to calculate each state's share of need as defined in figure II.3. These weights yield the following formula for calculating need:

[12]The beta coefficients are computed by multiplying the regression coefficients by the ratio of the standard deviation of the independent variable to the standard deviation of the dependent variable, the ADL/IADL index. Robert S. Pindyck and Daniel L. Rubinfeld, Econometric Models and Economic Forecasts (New York: McGraw-Hill Book Company, 1976), pp. 71-2.

Table II.4: Potential Caseloads Factor: Weights Used in Estimating State Prevalence Rates of ADL/IADL

Need factor: state share of	Weight
Pop. over 60	0.30
Pop. 70-74	0.03
Pop. 75-79	0.08
Pop. 80-84	0.09
Pop. 85+	0.15
Females	0.27
Nonwhite	0.04
Poverty	0.03

Sensitivity Analysis

Next, we examine whether estimates of state ADL/IADLs can be further simplified by eliminating one or more of the demographic variables from the model. Doing so would simplify the ultimate formula without sacrificing the accuracy of estimating needs. To do this, we reestimated the model deleting selected demographic variables and examined the extent to which the resulting model reflects ADL/IADL estimates.

We found that all the demographic variables included in the full model are important predictors of state ADL/IADL dependency rates. However, either poverty or females could be excluded with little loss in accuracy, but eliminating both would have a significant impact. Minority population and the older age groups, especially those over age 85, are the most important factors needed to predict state dependency rates.

1990 Census Data Not a Good Predictor of Mobility Limitations

The following describes in greater detail our analyses of the 1990 census population data on mobility and self-care limitations. The first analysis investigates if the census data are consistent with estimates based on the NCHS surveys. To do this, we examined the correlation between state estimates of ADL/IADL using the Elston, Koch, and Weissert method and two census measures: mobility limitations and self-care limitations.[13] Specifically, we calculated correlation coefficients between the two census measures with ADLs and IADLs separately, and together. The estimates are shown in table II.5.

The only statistically significant correlations are between the census self-care variable and ADL/IADL and the total (ADL plus IADL) measures. However, even in the case of the highest correlation (census' self-care

[13]1990 Census of Population and Housing, U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census (Washington, D.C.: Mar. 1991).

measure and our estimate for IADLs), only 30 percent of the interstate variation in one measure is captured in the other.[14] Overall, the correlation is surprisingly low for data that, on the surface, appear to measure similar things. For example, ADL dysfunctions include the questions on mobility and self-care.

Table II.5. Correlation Between Census Data for Mobility, Self-Care, and ADLs and IADLs

	GAO estimates		
Census estimates	**ADLs**	**IADLs**	**Total**
Mobility	0.17	0.23	0.21
Self-care	0.33[a]	0.55[a]	0.48[a]
Total	**0.21**	**0.31**	**0.28**

[a]Significant at a 5-percent level of confidence.

We have also analyzed the census data with respect to the demographic and poverty variables that were used in the Elston, Koch, and Weissert study. Specifically, we separately regressed the census estimate for mobility limitations and self-care limitations against each age group, poverty, nonwhite, and female populations.[15] The focus of this analysis was to determine if the data are consistent with prevailing research on aging, that is, do particular subgroupings of the elderly have more limitations than others?

The regression results, reported in table II.6, show that we did not obtain results similar to prior research findings. That is, the census mobility and self-care measures at the state level do not display the associations with demographic characteristics that previous research has shown with respect to ADLs and IADLs. The four major demographic variables (age, sex, minority status, and poverty) do predict the census' measures of mobility and self-care reasonably well; the R-squared for the regression is 0.86. However, the regression coefficients for many of these variables have the opposite sign of what would be expected based on prior research. For example, the regression coefficients for the age groups 70 to 74 and 85 and over, and the nonwhite population have negative coefficients. This fact implies that the nonwhite and very old individuals have fewer mobility and

[14]Squaring the correlation coefficient measures the amount of variation in one data series that is present in the other.

[15]We also regressed the mobility and self-care limitations against the same set of variables, and achieved similar results. The data are expressed as index numbers for each state relative to the state's 65-and-over population.

self-care problems than the younger age groups or the white race.[16] This result contradicts existing research, which concludes that older age groups and nonwhites have greater ADL/IADL limitations than younger age groups and the white population.

Table II.6: Regression Analysis of Census Mobility and Self-Care Data

Independent variables	Regression coefficient	t-statistic
Intercept	2.01	2.50
$Population_{70-74}$	–1.38	–1.72
$Population_{75-79}$	0.13	0.17
$Population_{80-84}$	0.36	0.57
$Population_{85+}$	–0.75	–3.54
Nonwhite	–1.07	–1.59
Poverty	0.26	7.42
Female	0.40	1.47

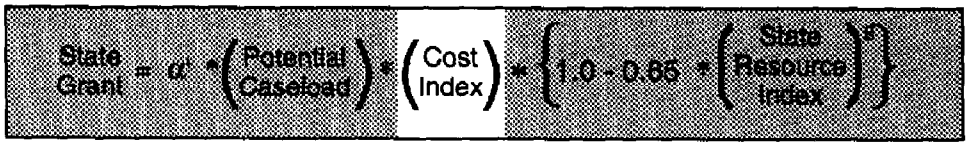
In conclusion, we decided not to use Census data for our indicator of need. The ADL/IADL measure better matches the potential caseload for title III services and also appears more reflective of the socioeconomic characteristics of title III program participants.

[16]Only the regression coefficient for the eldest population, 85 and above, is statistically significant at the 5-percent level. The coefficients for the other two variables are not statistically significant.

Measuring State Cost Differences

This appendix describes our method for measuring the cost index component of the equity-based formula (see fig. III.1).

Figure III.1: Equity-Based Formula for Calculating State Grants: Cost Index



An equity-based allocation formula would distribute federal grant dollars such that states would be able to purchase a comparable level of services. Ideally, such a distribution would compensate states that have higher costs of services that are beyond their direct control. For example, states where wage rates are higher because the general cost of living is high must pay more for workers providing title III services.

The cost index is constructed using available information on the services provided by AoA and from the pertinent research literature. Because scant data exist on the cost of providing title III services, we have had to use some judgment in order to construct the index. The index is broad-based and is not related to actual costs from title III programs. We believe the index is a reasonable proxy that reflects state differences in the cost of providing title III services.

Background

There are several reasons for using a broad-based index of title III services rather than an index of actual state costs. A cost index based on actual state performance could have the perverse effect of rewarding states that inefficiently administer the program. For example, an inefficiently managed program in a state could result in a higher per unit cost of delivering services, and consequently result in a larger grant. If states can directly control the cost factor that affects their grant size, states could increase their federal funding by operating at inefficiently higher cost levels. Such a cost factor would weaken the incentive for grantees to operate their programs in a cost-effective manner. Thus, the issue becomes one of finding an appropriate cost proxy that reflects "real" differences among states in terms of the cost of resources necessary to provide title III services but not directly influenced by the grantees' own actions. On the practical side, choosing a suitable proxy is far from clear,

and even then the choices made will only approximate "true" cost differences among the states.

Because any cost index will only be an approximation of true cost differences, the index we used is based on what we believe are reasonable assumptions that avoid overstating or exaggerating interstate cost differences. Although our reasoning is conservative, we believe our measure allows us at least partially to recognize real cost differences among the states and, at the same time, avoid introducing undesirable incentives into the grant formula.

Overview of Approach to Cost Measurement

To identify suitable proxies for our cost index, we analyzed AoA program expenditures for 2 recent years, fiscal years 1989 and 1990. Specifically, we reviewed title III program expenditures and classified them into three broad categories: meals, transportation, and miscellaneous. We then identified the major inputs involved in the provision of these services. Each input factor was weighted and combined into an overall cost index for the states. Finally, the overall cost index was adjusted for use of volunteer labor in the provision of services to the elderly.

OAA Services Can Be Grouped Into Three Major Categories

AoA identifies about 30 types of services provided under OAA. In table III.1 we list the various types of services provided, the amount of federal expenditures for fiscal years 1989 and 1990, and the percent distribution of expenditures by function.[1] Further breakdown of expenditures by input factors, such as personnel, equipment, office space, etc., is unavailable.

The information in table III.1 reveals that the single most important use of the federal grant is for the preparation of meals for the elderly; almost 60 percent of the federal grants in fiscal years 1989 and 1990 were spent on meals: congregate and in-home. Transportation is the second most important type of service provided under OAA.[2] The remaining services are quite varied and comprise slightly less than 30 percent of federal expenditures; none of them constitutes more than 4 percent of federal expenditures. The expenditures appear to be mainly for personal services.

[1]The expenditures reported in table III.1 are federal expenditures and do not include expenditures made by state and local governments for the elderly. Expenditures by state and local governments by function are not available.

[2]Included under transportation services is the cost of transporting the elderly to congregate meals.

Table III.1: Title III Spending by Service Category for Fiscal Years 1989 and 1990

Dollars in thousands

	Total spending			Percent	
Service category	**FY 89**	**FY 90**	**Average**	**Value**	**Cumulative**
Meals, congregate	$233,672	$246,459	$240,062	41.41	41.41
Meals, in-home	101,475	106,860	104,168	17.97	59.38
Transportation	67,746	68,383	68,064	11.74	71.12
Miscellaneous					
Information	20,720	22,878	21,799	3.76	74.88
Housekeeping	19,378	20,458	19,918	3.44	78.31
Personal care	17,462	17,317	17,389	3.00	81.31
Legal service	16,429	17,797	17,113	2.95	84.27
Outreach	15,549	13,339	14,444	2.49	86.76
Chore	11,402	9,757	10,579	1.82	88.58
Recreation	9,845	9,544	9,694	1.67	90.25
Assessment	7,659	11,465	9,562	1.65	91.90
Advocacy	8,769	8,640	8,704	1.50	93.41
Education	6,993	6,497	6,745	1.16	94.57
Follow-up	4,559	4,685	4,622	0.80	95.37
Counseling	3,484	3,913	3,698	0.64	96.00
Visiting	3,477	3,279	3,378	0.58	96.59
Telephoning	3,250	3,182	3,216	0.55	97.14
Repair/maintenance	2,838	2,891	2,864	0.49	97.64
Material aid	3,063	2,474	2,768	0.48	98.11
Treatment	2,575	2,487	2,531	0.44	98.55
Escort	2,027	2,264	2,146	0.37	98.92
Diagnosis	2,018	1,976	1,997	0.34	99.26
Placement	1,126	1,312	1,219	0.21	99.47
Supervision	727	851	789	0.14	99.61
Shopping	687	823	755	0.13	99.74
Guardianship	622	560	591	0.10	99.84
Discount	465	403	434	0.07	99.92
Interpreting	299	380	340	0.06	99.98
Letter-writing	117	150	134	0.02	100.00
Total	**$568,433**	**$591,024**	**$579,725**	**100.00**	**100.00**

Note: Totals may not add because of rounding.

Inputs Used to Provide Meals

Expenditures for meals are divided into two input components: food and labor. To estimate the cost for food, we use information from the Department of Agriculture (USDA) to quantify cost differences for food among the states.[3] In table III.2, we report USDA's food cost index. According to USDA, the states in the continental United States have comparable food costs, while Alaska and Hawaii's food costs are, respectively, 68 and 39 percent higher than those of the continental United States.[4] At the bottom of the table we present the standard deviation to show the amount of interstate variability in the data.

The second input factor we considered for meal preparation is labor. For this factor we used the Bureau of Labor Statistics' wage rate for food preparation services.[5] The highest wage rate for food preparation is 147 for Alaska, shown in table III.2. The lowest wage states are Iowa and North Dakota, at 29 percent below the national average.[6]

Table III.2: Interstate Cost Indexes for Food, Labor, and Building Space

U.S average = 100.0

	Meals			Miscellaneous	
State	Food	Labor	Constant	labor	Capital
Alabama	97.8	90.8	100.0	87.8	73.5
Alaska	167.6	146.9	100.0	137.8	137.9
Arizona	97.8	90.4	100.0	99.6	110.4
Arkansas	97.8	79.1	100.0	89.4	71.8
California	97.8	112.6	100.0	99.6	147.6
Colorado	97.8	92.5	100.0	100.3	103.6
Connecticut	97.8	128.4	100.0	136.6	135.1
Delaware	97.8	100.6	100.0	98.8	113.6
District of Columbia	97.8	146.6	100.0	107.0	145.3
Florida	97.8	107.1	100.0	95.8	99.8
Georgia	97.8	99.4	100.0	89.6	88.6

(continued)

[3]We spoke to an official from USDA's food stamp program, who claimed that the state variation in food costs is minimal except for Alaska and Hawaii.

[4]Food Stamp Program—Monthly Allotments and Deductions, USDA (Washington, D.C.: Oct. 1991-Sept. 1992).

[5]The Standard Industrial Classification code for eating and drinking places is SIC 5800. Employment and Wages, Annual Averages, 1990, U.S. Department of Labor, Bureau of Labor Statistics, Bulletin 2393 (Washington, D.C.: Nov. 1991).

[6]We converted the BLS wage rates into an index by dividing each state's wages by the average U.S. wages. This conversion facilitates the comparison of wage rates among the states and also the comparison among other factors.

U.S average = 100.0

State	Meals		Miscellaneous		
	Food	Labor	Constant	labor	Capital
Hawaii	138.7	133.0	100.0	116.1	134.1
Idaho	97.8	74.0	100.0	77.4	93.3
Illinois	97.8	101.2	100.0	98.4	113.4
Indiana	97.8	84.2	100.0	85.7	84.4
Iowa	97.8	70.9	100.0	82.8	85.2
Kansas	97.8	84.3	100.0	84.1	79.9
Kentucky	97.8	88.8	100.0	88.8	74.8
Louisiana	97.8	96.1	100.0	76.3	86.7
Maine	97.8	94.4	100.0	90.3	99.0
Maryland	97.8	116.3	100.0	106.0	105.7
Massachusetts	97.8	121.0	100.0	119.7	146.4
Michigan	97.8	89.1	100.0	93.8	99.5
Minnesota	97.8	86.5	100.0	90.7	99.3
Mississippi	97.8	80.6	100.0	76.6	72.0
Missouri	97.8	86.9	100.0	81.7	86.3
Montana	97.8	79.5	100.0	92.9	89.6
Nebraska	97.8	75.0	100.0	110.3	80.5
Nevada	97.8	106.8	100.0	98.7	133.7
New Hampshire	97.8	103.1	100.0	110.3	123.7
New Jersey	97.8	124.5	100.0	119.2	140.0
New Mexico	97.8	84.9	100.0	90.8	91.7
New York	97.8	124.1	100.0	128.3	139.4
North Carolina	97.8	92.1	100.0	81.7	80.7
North Dakota	97.8	71.2	100.0	75.6	83.1
Ohio	97.8	88.0	100.0	96.4	85.3
Oklahoma	97.8	87.1	100.0	84.8	84.6
Oregon	97.8	92.6	100.0	78.1	105.9
Pennsylvania	97.8	92.4	100.0	104.1	98.6
Rhode Island	97.8	101.8	100.0	115.0	111.9
South Carolina	97.8	92.9	100.0	79.7	75.5
South Dakota	97.8	73.0	100.0	98.8	75.6
Tennessee	97.8	97.8	100.0	84.2	81.6
Texas	97.8	101.7	100.0	99.3	85.4
Utah	97.8	73.5	100.0	77.7	97.0
Vermont	97.8	101.5	100.0	87.1	102.0
Virginia	97.8	98.7	100.0	88.1	88.3
Washington	97.8	97.4	100.0	93.7	101.5

(continued)

U.S average = 100.0

State	Meals		Miscellaneous		
	Food	Labor	Constant	labor	Capital
West Virginia	97.8	81.5	100.0	88.6	82.0
Wisconsin	97.8	76.4	100.0	86.5	88.2
Wyoming	97.8	76.7	100.0	93.2	87.1
Standard deviation	**11.1**	**18.2**	**0.0**	**14.8**	**21.9**

Inputs Used to Provide Transportation Services

The cost of transportation depends on wages paid for drivers and the cost of cars and vans, etc. Little data is available that identifies what percentage of transportation costs depends on personnel, cars and vans, and other factors used to provide transportation services. Therefore, we have not identified separate inputs for the transportation function.

Available research on elderly transportation programs suggests that the costs of transportation services are equal across states.[7] The transportation cost per mile is higher in urban areas than rural areas, owing to the higher cost for labor, insurance, and overhead. However, in contrast, the distances travelled per trip in rural areas are longer than in urban areas. As a consequence, the higher urban cost per mile is offset by the longer trips in the rural areas. Thus, the resulting difference in costs between rural and urban programs may be negligible. As a result, we assume that the cost of providing transportation services does not differ across states. This assumption is reflected in a uniform cost index, equal to one, for transportation services for all states.

Inputs Used to Provide Miscellaneous Services

For the miscellaneous expenditure category, we assume costs are mainly for labor. This miscellaneous category consists of a great number of services, none of which dominates the category, and all appear to be for personal care. To reflect the variety of services, we are using BLS' wage rates for social services, residential care.[8] This index appears to be a reasonable approximation for many of the services and is shown in table III.2. Again, Alaska has the highest wage cost, 38 percent above the U.S.

[7]Evaluation of Differences in Needs and Service Programs Between the Rural and Urban Elderly: Results of Secondary Data Analysis, Ecosometrics, prepared for HHS, Office of Human Development Services, Administration on Aging (Washington, D.C.: Apr. 30, 1982); and The Cost of Services to the Elderly: A Resource-Based Approach to Cost Analysis, Institute for Economic and Social Measurements, Inc., prepared for HHS, Office of Human Development Services, Administration on Aging, and The Institute for Social Research, University of Michigan, Ann Arbor, Michigan, under Grant No. 90-1A-1279 (Sept. 14, 1984).

[8]Employment and Wages, Annual Averages, 1990. The Standard Industrial Classification code for social services, residential care, is 8360.

average; in contrast, North Dakota has the lowest, 24 percent below the average (see table III.2).

Inputs Used to Provide All Services

Missing from the above input cost factors are the costs for capital equipment, such as building and office space, used in providing meals and miscellaneous services. We were unable to obtain interstate data on the cost of office space. To account for this factor, we are including a proxy based on residential rental rates to estimate the cost of commercial building space.[9] This proxy is currently used in the Alcohol, Drug Abuse, and Mental Health Services Block Grant. We are assuming that capital (building space) enters into the expenditure categories for meals, transportation,[10] and miscellaneous services.

Like the previous cost measures, Alaska has the highest cost for building space, almost 38 percent higher than the U.S. average, while Arkansas and Mississippi have the lowest, around 18 percent below the average.

An Aggregate Cost Index for OAA Services

To incorporate the cost indexes into a grant formula, we have weighted each index and combined them into a single composite index. This section describes how we weighted each input factor in arriving at an overall cost index.

So far as we are aware, comprehensive information on what proportion of program costs is associated with each of the input factors identified in table III.2 is not available. Several studies have examined the input costs for specific AoA services. In addition, we have reviewed studies that examine costs for other government grant programs. We are utilizing their results to determine the weights on each input factor in order to construct an overall cost index.

Table III.3 shows the three major expenditure categories and the input cost categories. The proportions shown in column two (program expenditure weights) are the program category percentages from table III.1 expressed as proportions. The columns to the right (labeled Capital, Labor, Materials, and Constant) indicate the relative importance of the

[9]Gregory C. Pope, Adjusting the Alcohol, Drug Abuse, and Mental Health Services Block Grant Allocations for Poverty Population and Cost-of-Service, Health Economics Research, Inc. (Needham, MA: Mar. 30, 1990).

[10]We are not separating out the capital costs for transportation expenditures. See prior discussion, p. 43.

input factor within each expenditure category. The first three factors indicate the costs that vary across states. The fourth factor—the constant—is not an actual cost factor but rather reflects the transportation function, whose costs do not vary across states.

Table III.3 Cost Index Weights Broken Down by Program Expenditure Category

Program expenditure categories	Program expenditure weights	Weights for input factors				
		Capital	Labor	Materials	Constant	Total
Meals	0.59	0.15	0.240	0.37	0.240	1.00
Transportation	0.12	[a]	[a]	[a]	1.000	1.00
Miscellaneous	0.29	0.15	0.375	[a]	0.475	1.00
Subtotal	**1.00**					
Weighted total		**0.13**	**0.25**	**0.22**	**0.40**	**1.00**

[a]Not applicable.

Capital. Although funds for capital, e.g., building space, are not listed in the categories of title III expenditures, we believe that building space and capital represent a cost of providing title III services. However, we cannot quantify the approximate proportion of total costs this item represents. In order to incorporate this input factor into our cost index, we assume that office and building space represents about 15 percent of total cost.[11]

Labor. For meals, we estimate that the proportion of total meal costs attributed to labor is approximately 0.240. The 0.240 is obtained by a downward adjustment of labor's weight, 0.57,[12] in the preparation of meals. The first adjustment is the inclusion of capital and lowers the 0.57 proportion by 15 percent, to 0.48. The second adjustment is intended to give recognition to the fact that some labor used in providing title III services is provided on a voluntary basis. This assumption decreases the 0.48 weight by half to 0.240, which is shown under the labor column for meals. Volunteer labor equalizes labor costs across the country (i.e., to the extent that much of the labor is free, then effectively the labor cost would be more uniform across the states). The one-half volunteer labor

[11]The 0.15 proportion is used in the Alcohol, Drug Abuse, and Mental Health Block Grant. See Pope, Adjusting the Alcohol, Drug Abuse, and Mental Health Services Block Grant Allocation. To accommodate the capital cost category, we have proportionately decreased the other input cost categories by 0.15.

[12]Patricia Welch and Lorna Bush, "Food and Labor Costs, Menu Quality and Client Participation in Fourteen Illinois Title III Nutrition Programs," Journal of Nutrition for the Elderly, Vol. 6(2) (Winter 1986). They estimated, on average, that food comprised 42.98 percent and labor 57.02 percent of meal costs. These results are based on a sample taken of 13 counties in southern Illinois.

adjustment is not based on any data, as no information is available on the extent of volunteer labor, and is judgmental. The remaining nonattributable labor proportion, 0.24, is placed under the constant cost column.

For the miscellaneous category, we assume that the labor costs make up 0.375 of total miscellaneous costs. This proportion is obtained by halving its initial proportion of 0.75.[13] Again, the one-half adjustment is an allowance to reflect the use of volunteer labor. The remaining nonattributable labor proportion, 0.375, is placed under the constant cost column.

Materials. For meals, we estimate that materials (food) make up approximately 0.37 of total expenditures for meals. The 0.37 is obtained by adjusting the proportion that food constitutes of total meal expenditures (0.43).[14] For the inclusion of capital expenditures, see our discussion on page 47.

For the miscellaneous category, we assume that material costs make up 0.10 of total miscellaneous costs.[15] This proportion, 0.10, is also used in the Alcohol, Drug Abuse, and Mental Health Block Grant. We assume that these materials are purchased in a national market and, accordingly, the costs are constant across states. Therefore, their weight is added into the constant cost category.

To calculate the final weights to be applied to each factor, the weights for the input cost factors are multiplied by the weights in the program expenditure column. So, for example, the total weight for capital cost for meals is approximately 0.09, which is obtained by summing (1) the product of the program expenditure weight for meals (0.59) and capital's weight for meals (0.15) and (2) the product of the program expenditure weight for miscellaneous services (0.29) and capital's weight for miscellaneous services (0.15). The other weights for the three other factors are obtained in similar manner. The final weights by input factor are shown in the bottom row of table III.3. The formula for the cost index is

[13]See Pope, Adjusting the Alcohol, Drug Abuse, and Mental Health Services Block Grant Allocation.

[14]See Welch and Bush, Food and Labor Costs.

[15]See Pope, Adjusting the Alcohol, Drug Abuse, And Mental Health Services Block Grant Allocation.

Cost Index = 0.13 Capital
+0.14 Service Wage Index
+0.11 Miscellaneous Services Wage Index
+0.22 Food Cost Index
+0.40 Constant

The cost index for each of the states is shown in table III.4. We refer to this cost index as a conservative cost index, as it may underestimate some of the cost differences among the states. Forty percent of the index is constant, and another 22 percent (for food) shows little variation.[16] Alaska and Hawaii have the highest overall cost, 30 and 19 percent above the national average, respectively, while Mississippi and North Dakota have the lowest, almost 10 percent below average. Overall, 29 states differ from the national average by more than 5 percent.

Table III.4: Interstate Cost Index

U.S. Average = 100.0

State	Cost Index
Alabama	93.4
Alaska	130.5
Arizona	99.5
Arkansas	91.8
California	107.4
Colorado	99.0
Connecticut	112.1
Delaware	101.2
District of Columbia	112.7
Florida	100.0
Georgia	96.8
Hawaii	119.3
Idaho	92.5
Illinois	101.3
Indiana	93.7
Iowa	91.6
Kansas	93.0
Kentucky	93.4
Louisiana	94.6
Maine	97.5
Maryland	103.2

(continued)

[16]The standard deviation of the index is 0.07, which is less than the standard deviation for food.

U.S. Average = 100.0

State	Cost Index
Massachusetts	110.7
Michigan	97.2
Minnesota	96.5
Mississippi	90.6
Missouri	93.9
Montana	94.5
Nebraska	94.6
Nevada	104.7
New Hampshire	104.2
New Jersey	110.3
New Mexico	95.3
New York	111.1
North Carolina	93.9
North Dakota	90.6
Ohio	95.5
Oklahoma	94.1
Oregon	96.8
Pennsylvania	98.7
Rhode Island	103.0
South Carolina	93.1
South Dakota	92.4
Tennessee	95.1
Texas	97.8
Utah	93.0
Vermont	98.6
Virginia	96.5
Washington	98.7
West Virginia	93.3
Wisconsin	93.2
Wyoming	93.8
Standard deviation	**7.9**

Summary of the Interstate Cost Index

We identified the weights attached to the input factors and estimated an overall cost index for interstate differences in the cost of providing title III services. Though we believe the cost indexes are based on reasonable assumptions, they are not without fault. The main weaknesses are the following:

(1) The breakdown of program outlays, table III.1, is for the federal dollars and does not include expenditures from the states' own sources. If state expenditures from their own sources are of similar magnitude, and if state expenditures do not follow a similar distribution, the weights presented may deviate from the values shown.

(2) The breakdown of program outlays into input cost factors is based on scant information. For example, the breakdown of meals into food and labor is based on information from a single state and assumes that this cost breakdown carries over into other states. Moreover, we have no information on the use of volunteer labor.

(3) The breakdown of program outlays for capital expenditures is not available. We are estimating this cost by assuming it is similar to other grant programs that offer services different from the services under AoA.

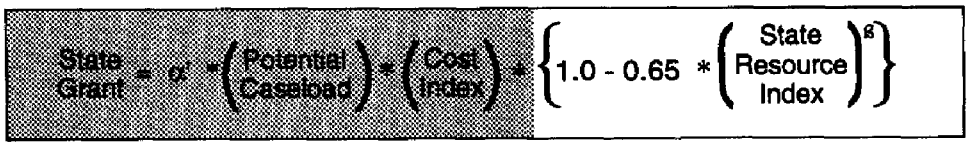
(4) The breakdown of labor into volunteer and paid is based on judgment. No information is available on the extent to which volunteer labor is used to provide services.

Notwithstanding these reservations, we believe program costs do vary, and probably vary considerably in many instances. As a consequence, we decided it was better to use a rough proxy for cost differences rather than ignore them, which is to assume all states have the same cost of providing services. Because the cost index is only a proxy for cost differentials, we have developed some formula options that include the cost index and others that do not. These options are described in appendix VI.

Indicators Used to Measure State Financing Capacity

This appendix describes our method of reflecting differences in states' abilities to fund title III services from their own resources, represented by the "State Resource Index" part of the formula (see fig. IV.1).

Figure IV.1: Equity-Based Formula for Calculating State Grants—Fiscal Capacity



The taxpayer equity principle would distribute federal funds so all states are able to finance an average level of title III services with an average burden on state taxpayers. In appendix I, we explained that this equity standard requires an indicator of each state's ability to finance title III services from its own sources. In this appendix, we define the concept of states' ability to finance title III services and describe how it is used to achieve taxpayer equity.[1]

Measuring State Resources for Funding Title III Services

A good indicator of state fiscal capacity would measure the relative ability of state taxpayers to finance public services from their own resources. A measure of fiscal capacity should have these qualities:

- Comprehensiveness. A fiscal capacity indicator should measure the total ability of a state to finance public services. This statement implies that the indicator should measure all types of potential resources.
- Reflect Tax Exporting. In order to be comprehensive, a fiscal capacity measure should take into account the phenomenon of tax exporting. Tax exporting arises when nonresidents pay taxes to a state.
- Measure Available, Not Actual, Use of Fiscal Resources. A fiscal capacity measure should reflect a state's inherent ability to finance public services. It should not be affected by an individual state's actual fiscal decisions.

[1]Throughout this report, we use the terms "state resources" and "fiscal capacity" interchangeably to refer to states' abilities to fund program services from their own sources.

Income-Based and Revenue-Based Approaches

In recent years, public finance specialists have developed two approaches for measuring fiscal capacity. One estimates the ability of a state to raise revenue by gauging its taxing capacity against an average or typical revenue system.[2] A second estimates the ability of taxpayers to pay taxes according to estimates of economic income, broadly defined.[3] Revenue-based approaches would be used to equalize government capacities to raise revenues, while income-based approaches would be used to equalize taxpayer burdens.

Between these notions of equalization, the income-based approach was well suited to our reporting objective of assessing the extent to which the current allocation of title III funding accords equity to state taxpayers. Since the revenue-based approach focuses on the capacity of governments to raise revenue, rather than on taxpayers' ability to pay taxes, we eliminated this approach from consideration.

Total Taxable Resources a Better Measure of Financing Capacity

Total Taxable Resources measures a state's fiscal capacity by measuring all income potentially subject to a state's taxing authority. TTR is an average of personal income and per capita Gross State Product (GSP). Personal income is compiled by the Department of Commerce and used to measure the income received by state residents, including wages and salaries, rents, dividends, interest earnings, and income from nonresident corporate business. It also includes an adjustment for the rental value of owner-occupied housing on the grounds that such ownership is similar to the interest income earned from alternative financial investments. GSP measures all income produced within a state, whether received by residents, nonresidents, or retained by business corporations. Consequently, it reflects the income received by out-of-state commuters,

[2]The well-known version of this revenue-based approach to measuring fiscal capacity is the Representative Tax System (RTS). RTS measures fiscal capacity by estimating the tax yields that would result if a standard set of tax base definitions and tax rates were applied in every state. The 27 taxes included in the Advisory Commission on Intergovernmental Relations' system represent all state and local taxes commonly used in the United States. RTS does not seek to establish an "ideal" tax structure. Instead, it relies on revenue sources that are currently taxed. From these, national average rates are applied to calculate the tax revenues that hypothetically could be raised from existing bases. By applying national averages, RTS does not reflect a state's actual tax policy when estimating its fiscal capacity. However, by tying a state's measured fiscal capacity to its tax base, RTS estimates do reflect differences in public and private consumption within states.

[3]Income-based measures of fiscal capacity draw on economic theory to provide a comprehensive definition of income (total consumption plus the change in net worth) to reflect the total purchasing power of state residents. Because total purchasing power is measured by income, determinations of fiscal capacity based on this approach are made without regard to actual state or local tax policies or practices. A comprehensive fiscal capacity measure also should include the capacity to collect taxes from nonresidents. Within an income-based framework, this goal is achieved by including the income of nonresidents whom states have the ability to tax (corporate income, for example).

landlords, and business owners operating in a state as well as income produced in-state and received by state residents. GSP also includes indirect business taxes, such as retail sales and excise taxes, that are excluded from measures such as personal income. TTR includes GSP taxes without regard to whether they are paid out of income received by residents or nonresidents.

By averaging GSP with personal income, the TTR measure covers more types of income than personal income alone, including income received by nonresidents. Finally, TTR reflects states' economic resources rather than states' revenue-raising choices, like some other fiscal capacity measures such as RTS. A state-by-state comparison of fiscal capacity using the TTR measure is shown in table IV.1. and is compared to an index of personal income.

Thus, TTR is a better overall measure of fiscal capacity because it is a more comprehensive indicator of economic income and addresses tax exporting. TTR has the added feature of technical and political feasibility, as it is currently in use within the Alcohol, Drug Abuse, and Mental Health Block Grant formula.

Table IV.1: Indexes of Fiscal Capacity

States	TTR	Personal Income
Alabama	80	80
Alaska	142	115
Arizona	87	86
Arkansas	76	76
California	112	110
Colorado	99	101
Connecticut	133	138
Delaware	111	107
District of Columbia	219	128
Florida	92	99
Georgia	94	91
Hawaii	111	105
Idaho	79	80
Illinois	108	109
Indiana	91	91
Iowa	91	92
Kansas	95	97

(continued)

States	TTR	Personal income
Kentucky	83	80
Louisiana	84	77
Maine	92	92
Maryland	108	117
Massachusetts	118	123
Michigan	96	99
Minnesota	102	100
Mississippi	70	69
Missouri	94	94
Montana	81	82
Nebraska	93	93
Nevada	109	99
New Hampshire	110	114
New Jersey	131	134
New Mexico	78	76
New York	118	118
North Carolina	91	87
North Dakota	82	80
Ohio	94	94
Oklahoma	81	83
Oregon	90	91
Pennsylvania	96	100
Rhode Island	96	102
South Carolina	82	80
South Dakota	80	82
Tennessee	88	85
Texas	93	89
Utah	77	74
Vermont	96	94
Virginia	106	106
Washington	98	99
West Virginia	74	74
Wisconsin	93	94
Wyoming	103	87
U.S. average	100	100
Standard deviation	22.8	15.8

Although TTR and personal income appear to be similar, they differ in important respects. Most significantly, personal income understates the ability to export taxes for states like Alaska, Texas, and Louisiana. For example, personal income understates Alaska's fiscal capacity by 27 percent. A comparison of the indexes in table IV.1 indicates greater differences in revenue-raising ability based on the more comprehensive measure of TTR.

Developing an Index of State Financing Capacity

To create an index of state financing capacity, TTR must be adjusted in two ways. First, TTR does not take into account state differences in the cost of providing title III services. If a dollar of income purchases different quantities of services, then TTR will overstate the financing capacity of high-cost states and understate it in states with lower costs. We therefore have adjusted each state's TTR by the cost index described in appendix III (see table III.4). In addition, to create an index, TTR needs to be expressed on a per-person basis. To achieve taxpayer equity, TTR needs to be measured relative to the number of potential recipients (i.e., measured relative to the size of each state's potential caseload). For comparison purposes, we have also calculated TTR indexes based on total population and the population over 60 years of age, with and without the cost adjustment. The results are shown in table IV.2.

Table IV.2: Total Taxable Resources Relative to State Populations

U.S. average = 100

States	Total population	Elderly		Potential caseload, cost adjusted
		No cost adjustment	Cost adjusted	
Alabama	80	78	83	79
Alaska	142	372	285	340
Arizona	87	84	85	89
Arkansas	76	65	71	68
California	112	132	123	124
Colorado	99	122	123	127
Connecticut	133	124	111	112
Delaware	111	112	111	116
District of Columbia	219	216	192	161
Florida	92	66	66	67
Georgia	94	115	119	116
Hawaii	111	119	100	93
Idaho	79	84	91	94

(continued)

U.S. average = 100

States	Total population	Elderly		Potential caseload, cost adjusted
		No cost adjustment	Cost adjusted	
Illinois	108	108	107	106
Indiana	91	90	96	97
Iowa	91	77	84	80
Kansas	95	88	95	91
Kentucky	83	82	88	87
Louisiana	84	93	98	94
Maine	92	87	89	89
Maryland	108	122	119	121
Massachusetts	118	111	100	99
Michigan	96	100	103	105
Minnesota	102	104	108	105
Mississippi	70	71	78	71
Missouri	94	85	91	88
Montana	80	76	80	82
Nebraska	93	85	90	86
Nevada	109	122	116	137
New Hampshire	110	122	117	120
New Jersey	131	122	110	113
New Mexico	78	90	94	97
New York	118	112	101	99
North Carolina	91	93	99	98
North Dakota	82	75	83	79
Ohio	94	90	94	96
Oklahoma	81	76	81	78
Oregon	90	84	87	89
Pennsylvania	96	79	80	81
Rhode Island	96	82	79	79
South Carolina	82	89	95	95
South Dakota	80	70	76	73
Tennessee	88	87	92	90
Texas	93	113	116	115
Utah	77	111	119	126
Vermont	96	103	105	105
Virginia	106	121	126	127
Washington	98	105	107	110

(continued)

U.S. average = 100

States	Total population	Elderly		Potential caseload, cost adjusted
		No cost adjustment	Cost adjusted	
West Virginia	74	62	67	68
Wisconsin	93	89	96	95
Wyoming	103	121	129	137
Standard deviation	**23**	**45**	**33**	**39**

The first column shows each state's TTR index when measured on a total population basis. Alaska had the highest value with taxable resources, 42 percent above the national average, and Mississippi the lowest, 30 percent below average. The effect of expressing TTR relative to the elderly population is shown in the second column. Because there are relatively few elderly people living in Alaska, its taxable resources per elderly individual is over 3.7 times the national average, rather than 42 percent above average when measured relative to total population. Because Mississippi's share of elderly individuals is about the same as its share of total population, its TTR index changes by only 1 percentage point, from 70 to 71.

The situation is quite different in Florida and Georgia. Florida has a relatively high concentration of elderly individuals. Consequently, when its financing capacity is expressed relative to its elderly population, its TTR index is 34 percent below average instead of 8 percent below. The opposite is true of Georgia. Because Georgia has a lower percentage of elderly individuals, its taxable resources per elderly individual are 15 percent above average. Thus, while both states have nearly equal resources when expressed on a per capita basis, they differ significantly when measured relative to their elderly populations.

The impact of adjusting each state's TTR for differences in the cost of services is shown in the third column. As would be expected, states that face higher costs have lower taxable resources after adjusting for cost differences. Alaska's TTR index, for example, is adjusted downward from 372 to 285, and Connecticut's index is adjusted down from 24 percent above the average to 11 percent above. In contrast, low-cost states are adjusted upward. Mississippi's TTR index increases from 29 percent below the average to 22 percent below, and Georgia's index rises from 15 percent above the national average to 19 percent above average.

The effect of adjusting TTR relative to potential caseloads is shown in the last column. Because Alaska has comparatively fewer caseloads (i.e., fewer people in the oldest age groups, of minority status, poor, or female), its taxable resources per potential caseload rise to almost 3-1/2 times the national average. In contrast, Florida and West Virginia are each about one-third below the national average when their taxable resources are expressed relative to their populations in need.

Determination of the Federal Percentage for Title III Services

As explained in appendix I, the taxpayer equity standard would distribute federal assistance in accordance with the described formula. The last term highlighted in the formula represents what we have called the OAFP and represents the percentage of each state's need (as reflected by potential caseloads and the cost of services) that is subject to federal assistance. States with high needs and a low financing capacity would be subject to a higher federal percentage, and states with low needs and a higher financing capacity would be subject to a lower federal percentage.[4] This factor, by providing more generous federal funding in poorer states, serves to offset the higher tax burden low-income states would otherwise have to pay to provide a national average basket of title III services.

Balancing Beneficiary and Taxpayer Equity

The exponent β in the formula controls the degree to which either the beneficiary equity or the taxpayer equity standard is achieved. As we noted in appendix I, if $\beta=1.0$, grants will be targeted to achieve full taxpayer equity. That is, all states will be able to finance the national average basket of title III services with comparable burdens on state taxpayers. If the exponent $\beta=0$, each state's OAFP is identically equal to 0.35 for every state.[5] Since this number is a constant that can be incorporated into the constant of proportionality, α', the formula becomes identical to the beneficiary equity formula in that it allocates funding only on the basis of potential caseloads and costs. Consequently, if the exponent β is between zero and 1, federal funds will be targeted to reduce taxpayer burdens, but they will not be eliminated. We therefore refer to formulas where $0<\beta<1$ as "balanced equity" formulas since the title III percentage

[4]This OAFP is analogous to the federal medical assistance percentage used to calculate federal reimbursement rates under the Medicaid programs, whereby lower income states receive more generous federal reimbursements.

[5]From elementary algebra, any number raised to an exponent of zero is identically equal to 1.0. In this case, the formula for the OAA percentage reduces to 1.0 - 0.65 = 0.35.

will offset, but not completely eliminate, differences in state taxpayer burdens.[6]

The OAFP for each state is shown in table IV.3 using our measure for potential caseloads. The first column shows what each state's federal percentage would have to be to achieve full taxpayer equity. If strictly applied, the negative percentage for Alaska implies that the state would have to contribute to the federal government to help finance other state programs rather than receive a grant from the federal government.[7] To avoid this outcome, we have arbitrarily placed a minimum value on each state's OAFP of zero. We refer to this circumstance as "full taxpayer equity" with a "floor" on the federal percentage. This outcome is shown in column two. All states with a positive federal percentage remain unchanged, and Alaska's percentage is raised to zero.

The case of balanced equity is illustrated using values of 0.7 and 0.5 for the exponent β. As can be seen in table IV.3, the lower the value of this parameter the closer each state's OAFP moves to the national average value of 0.35. This has the effect of making states with above average TTR scores appear less wealthy for formula purposes, and poorer states appear richer. The effect will be to lower state tax burden disparities but not to eliminate them.

Table IV.3: Older Americans Federal Percentage by State Under Full and Partial Taxpayer Equity

	Taxpayer equity		Balanced equity	
States	**No floor**	**Floor**	**Beta = 0.7**	**Beta = 0.5**
Alabama	48.0%	48.0%	44.4%	44.0%
Alaska	-122.8	0.0	0.0	0.0
Arizona	41.4	41.4	39.5	38.6
Arkansas	55.4	55.4	50.0	48.5
California	18.5	18.5	23.9	24.8
Colorado	16.6	16.6	22.6	27.0
Connecticut	26.5	26.5	29.1	27.0
Delaware	24.2	24.2	27.6	29.6
District of Columbia	38.3	38.3	37.3	33.0
Florida	56.2	56.2	50.7	46.8
Georgia	24.1	24.1	27.6	31.1

(continued)

[6]This conclusion will be demonstrated for several formula options described in appendix VI.

[7]This situation occurs because Alaska's taxable resources are so far above the national average that the state could provide the national average level title III benefits without assistance from the federal government and be able to do so with a below-average tax burden on state taxpayers. To raise its tax burden to the national average, Alaska would have to contribute to financing other state programs.

States	Taxpayer equity		Balanced equity	
	No floor	Floor	Beta = 0.7	Beta = 0.5
Hawaii	39.3	39.3	38.0	31.6
Idaho	38.2	38.2	37.2	39.2
Illinois	30.6	30.6	32.0	32.6
Indiana	36.2	36.2	35.8	37.8
Iowa	47.5	47.5	44.1	44.3
Kansas	40.2	40.2	38.7	40.1
Kentucky	42.7	42.7	40.5	41.2
Louisiana	38.5	38.5	37.5	38.7
Maine	41.5	41.5	39.6	39.3
Maryland	20.8	20.8	25.3	27.3
Massachusetts	35.2	35.2	35.1	31.9
Michigan	31.5	31.5	32.6	34.4
Minnesota	31.3	31.3	32.5	34.6
Mississippi	53.4	53.4	48.5	47.8
Missouri	42.6	42.6	40.4	41.0
Montana	46.0	46.0	42.9	42.6
Nebraska	43.7	43.7	41.2	41.3
Nevada	10.5	10.5	18.7	22.2
New Hampshire	21.7	21.7	25.9	27.4
New Jersey	25.9	25.9	28.8	27.3
New Mexico	36.6	36.6	36.1	37.5
New York	35.4	35.4	35.2	31.9
North Carolina	35.6	35.6	35.4	37.5
North Dakota	47.9	47.9	44.4	44.8
Ohio	37.4	37.4	36.7	37.8
Oklahoma	49.0	49.0	45.1	44.3
Oregon	41.8	41.8	39.8	39.7
Pennsylvania	46.7	46.7	43.4	41.7
Rhode Island	48.4	48.4	44.7	41.4
South Carolina	37.9	37.9	37.1	38.9
South Dakota	52.5	52.5	47.8	46.7
Tennessee	41.2	41.2	39.4	39.9
Texas	24.7	24.7	28.0	31.0
Utah	17.6	17.6	23.3	29.6
Vermont	31.2	31.2	32.4	33.8
Virginia	16.9	16.9	22.8	28.0
Washington	28.0	28.0	30.2	32.2
West Virginia	55.8	55.8	50.3	48.3

(continued)

States	Taxpayer equity		Balanced equity	
	No floor	Floor	Beta = 0.7	Beta = 0.5
Wisconsin	37.6	37.6	36.9	38.7
Wyoming	10.4	10.4	18.6	26.3
United States	**35.1%**	**35.1%**	**35.1%**	**35.1%**

Current OAA Distribution Is Not Allocated Equitably

The current method of distributing federal assistance under title III does not achieve either beneficiary or taxpayer equity. Because the title III formula uses only the population over 60 years old, the distribution of federal assistance does not take into account the potential caseloads and cost factors needed to achieve beneficiary equity, nor does it consider the additional factor, fiscal capacity, needed to achieve taxpayer equity. In this appendix, we provide state-by-state detail on the relatively wide variation in funding per person in need and in state taxpayer burdens.

Current Funding Does Not Achieve Beneficiary Equity

If federal funding were distributed so that the aid provided purchased comparable services per person in need, all states would receive identical grants when adjusted for cost differences and expressed on a per-person-in-need basis. The result of making these adjustments is shown in table V.1. The 50 states and the District of Columbia have been sorted into two groups: (1) states whose funding is below the national average, and (2) states whose funding is above the national average.

If the beneficiary equity standard were achieved, every state would receive the same funding per person in need. This situation would be represented by every state's having an index of 100. Therefore, the degree to which these index numbers differ from one another provides a measure of the degree to which the current distribution of federal funding falls short of the beneficiary equity standard.

There are 17 states that are underfunded under the beneficiary equity standard. For example, Florida's funding per person in need is 11 percent below the national average. At the other extreme, there are 34 states that are consistently funded above the national average. The most extreme cases are Alaska and Wyoming. Alaska's funding per person in need is over 5 times the national average, and Wyoming's funding is more than 3.7 times the national average.

Table V.1: Title III Funding Per Person in Need

U.S. average = 100
Standard deviation = 77

Above the national average		At or below the national average	
State	**Average**	**State**	**Average**
Alaska	554	Illinois	100
Wyoming	373	Alabama	100
Vermont	246	South Carolina	98
Delaware	199	Hawaii	98
North Dakota	192	Colorado	97
South Dakota	166	Virginia	97
Montana	165	Washington	97
District of Columbia	154	North Carolina	97
Idaho	152	Texas	96
Nevada	136	Georgia	95
New Hampshire	127	Maryland	93
Utah	125	New Jersey	92
West Virginia	113	Massachusetts	92
Iowa	109	New York	91
New Mexico	109	Connecticut	91
Rhode Island	108	Arizona	89
Nebraska	108	Florida	89
Arkansas	108	California	88
Kansas	107		
Kentucky	107		
Wisconsin	107		
Maine	107		
Indiana	106		
Oklahoma	105		
Ohio	105		
Missouri	105		
Mississippi	104		
Pennsylvania	103		
Michigan	102		
Minnesota	102		
Louisiana	101		
Oregon	101		
Tennessee	101		

Current Funding Does Not Achieve Taxpayer Equity

The current distribution of title III funding also falls short on our taxpayer equity standard. Because the current distribution of federal assistance does not reflect differences in the capacity of state taxpayers to finance program services, substantial differences in state taxpayer burdens exist.

The taxpayer equity standard would be achieved if federal funds were distributed so that all states could finance a national average basket of services with comparable burdens on state taxpayers. To measure state differences in state tax burdens, we calculated the tax burden each state would have to bear if it were to provide the national average basket of services, given the level of federal funding actually received for fiscal year 1993.[1] The results are shown in table V.2. To facilitate state-by-state comparisons, we have expressed each state's tax burden relative to the national average. Again, states were placed in one of two groups: (1) states whose burdens are below average and (2) states whose burdens are above average. If federal grants were distributed to offset tax burden disparities, each state's tax burden would be equal to the national average—all the numbers reported in table V.2 would be equal to 100. Therefore, deviations from 100 represent tax burden disparities.

The results reported in table V.2 indicate a wide range of tax burdens. There are 25 states whose tax burdens are above the national average. For example, Florida would incur a tax burden 58 percent above the national average if it were to provide an average basket of title III services. Arkansas' burden would be over 61 percent above the national average. At the other extreme, 26 states would have tax burdens that are below the national average. For example, federal funding for Alaska and Wyoming is sufficiently high that they are able to fund an average level of title III services without having to commit any state resources. Hence, their tax burdens are zero. Vermont and Delaware are able to provide an average service level with tax burdens 77 and 61 percent below the national average, respectively.

[1]In making these calculations, we used the national average spending per person in need as our proxy for the national average basket of services. We then calculated how much funding would have to come from state sources to finance that service level, given the amount of federal assistance states received. This amount was expressed as a percentage of their TTR to measure the tax burden associated with financing the average service level.

Table V.2: Tax Burdens Required to Finance Average Title III Services

U.S. average = 100
Standard deviation = 35

Above the national average		Below the national average	
State	**Average**	**State**	**Average**
Arkansas	161	Minnesota	99
Mississippi	160	Michigan	98
Florida	158	Washington	94
West Virginia	153	Georgia	93
Alabama	139	Illinois	92
Oklahoma	137	Texas	92
Iowa	136	Massachusetts	90
Pennsylvania	123	New York	90
Missouri	122	Montana	90
Kentucky	122	Idaho	89
Nebraska	121	Virginia	84
Tennessee	119	North Dakota	83
Arizona	119	Hawaii	82
South Carolina	118	Maryland	82
Kansas	118	Colorado	81
Oregon	117	New Jersey	79
Rhode Island	115	Connecticut	78
Louisiana	115	Utah	78
North Carolina	113	California	77
Wisconsin	112	New Hampshire	66
Maine	112	Nevada	54
Indiana	110	Delaware	39
Ohio	109	District of Columbia	33
South Dakota	106	Vermont	23
New Mexico	106	Alaska	0
		Wyoming	0

Summary

The current title III funding formula ignores differences among the states in terms of their potential caseloads, the cost of providing services, and state taxpayers' capacity to fund program services from their own resources. As a consequence, there are substantial differences among states in the services their federal grant will purchase and in the tax burdens state taxpayers would face if they were to provide an average basket of title III services for their needy population.

Description of GAO's Equity-Based Formula Options

We used two equity standards (beneficiary and taxpayer equity) to evaluate the formula now used to distribute funding for title III programs among the states. In this appendix, we describe six formula options designed to achieve these equity standards to varying degrees. We first describe the grant distribution formulas that would achieve beneficiary and taxpayer equity. This description is followed by a more detailed description of how each factor was measured and incorporated into a formula. The remainder of the appendix provides state grant amounts under each option and an assessment of how well each option satisfies our beneficiary and taxpayer equity standards.

Description of Equity-Based Grant Formulas

The grant distribution formulas that would achieve beneficiary and taxpayer equity were described in appendix I and are shown again here for convenience:

Figure VI.1: Beneficiary Equity Formula

$$\text{State Grant} = \alpha * \left(\text{Potential Caseload}\right) * \left(\text{Cost Index}\right)$$

Figure VI.2: Taxpayer Equity Formula

$$\text{State Grant} = \alpha' * \left(\text{Potential Caseload}\right) * \left(\text{Cost Index}\right) * \left\{1.0 - 0.65 * \left(\text{State Resource Index}\right)^{\varepsilon}\right\}$$

To achieve beneficiary equity, grants should be distributed in proportion to each state's potential caseload and adjusted for state differences in the cost of providing title III services.[1] Taxpayer equity requires that, in addition to these factors, funds also be distributed in proportion to states' own resources for funding program services, achieved by the last term in figure VI.2.[2]

[1]The measurement of these factors was discussed in appendixes II and III.

[2]Measurement of states' financing capacity and OAFP was discussed in appendix IV.

Both equity standards cannot be achieved simultaneously because each implies different funding amounts for individual states. The concept of balanced taxpayer equity was introduced in appendix I and discussed in more detail in appendix IV. Balanced equity formulas reduce, but do not eliminate, disparities in state taxpayer burdens. They therefore move the distribution of grant funding to an intermediate position between beneficiary and taxpayer equity allocations. As explained in appendix IV, the trade-off between beneficiary and taxpayer equity is achieved through the exponent β, used to calculate each state's OAFP. When the exponent is equal to one, federal grants will be distributed so that differences in state taxpayer burdens will be eliminated. If $0<\beta<1$, partial taxpayer equity will be achieved in the sense that state taxpayer burdens will be reduced but not eliminated.

Six Formula Options Illustrate Alternatives

We developed six formula options to illustrate the range of funding outcomes possible under the equity standards we considered. The alternatives reflect beneficiary equity, taxpayer equity, and four balanced equity versions that reflect various trade-offs between the two standards.

The balanced equity options were selected to illustrate the impact of including or excluding a cost factor, using different values for the exponent β, and different ceilings placed on OAFP.[3] The detailed specifications of each of the six options are summarized in table VI.1.

Table VI.1: Formula Parameters Used in the Six GAO Formula Options

	Formula options					
	Beneficiary equity	Taxpayer equity	Balanced equity			
Formula parameters	# 1	# 2	# 3	# 4	# 5	# 6
Cost	Yes	Yes	Yes	No	No	No
Fiscal capacity	No	Yes	Yes	Yes	Yes	Yes
Beta (β)	[a]	1.0	0.7	0.7	0.7	0.5
Ceiling	[a]	[a]	[a]	[a]	0.4	0.4

[a]Not applicable.

Options 3 through 6 represent our balanced equity alternatives. Option 3 is the same as the full taxpayer equity option except the exponent, β, is reduced from 1.0 to 0.7. Option 4 demonstrates the effect of ignoring cost

[3]Lower values for the exponent β produce less targeting to low-income states, moving the distribution of aid closer to the beneficiary equity standard. In addition, placing a ceiling on OAFP limits the amount of funding to low-income states.

differences among the states by deleting this factor from the formula. Option 5 reduces the degree of taxpayer equity further by placing a ceiling on OAFP. This action has the effect of reducing funding for states with the lowest financing capacity. Finally, option 6 shows the effect of reducing the exponent further, from 0.7 to 0.5.

GAO Formula Options Would Target More Funding to Smaller, Low-Income States

The impact of each of the formula options on state funding amounts varies significantly, both in terms of the number of states whose funding would increase or decrease and in terms of the percentage of available funds that would have to be reallocated if appropriation levels did not increase.[4] The amount redistributed ranges from as little as 2.8 percent to as much as 11.3 percent of the total amount to be distributed (see table VI.2). Similarly, the number of states that would receive more funding ranges from as few as 12 states to as many as 25. Finally, under the GAO alternatives, there are eight states whose funding level does not change due to the minimum funding guarantees under the act.

Table VI.2: Summary Statistics for the Six GAO Equity Options, Changes in Allocations, and the Number of States Changing Allocations

Dollars in millions

	Formula options					
	Beneficiary equity	Taxpayer equity	Balanced equity			
Funds redistributed	# 1	# 2	# 3	# 4	# 5	# 6
Amount	$21.1	$85.9	$59.7	$83.8	$66.4	$50.8
Percent	2.8%	11.3%	7.7%	11.0%	8.8%	6.7%
No. increasing	12	23	22	24	25	24
No. decreasing	31	20	21	19	18	19
No. no change	8	8	8	8	8	8

Table VI.3 further summarizes the redistributive effects with respect to state population size and fiscal capacity. There is some modest redistribution between large and medium-sized states under the beneficiary equity option. Generally, more redistribution occurs under the other options. Small states are largely unaffected because most small states are guaranteed at least 0.5 percent of the total appropriation under all formula options considered.

The beneficiary equity option (option 1) would redistribute about 6.7 percent of federal funding to high-income (as measured by TTR, see

[4]Higher appropriation levels would, of course, reduce the number of states that would receive lower funding amounts and mitigate the amount lost for states that would otherwise receive less.

app. IV) states, with corresponding reductions in middle- and low-income states. All other options would produce a substantial redistribution in favor of states whose incomes are low, relative to their potential caseloads and the cost of services.

Table VI.3: GAO-Proposed Alternative Formula Allocation, by Population and TTR

Dollars in thousands

	Beneficiary equity	Taxpayer equity	Balanced equity			
	#1	#2	#3	#4	#5	#6
By population						
Largest 13 states						
Amount	$11,947	-$15,299	-$6,577	-$30,316	-$26,284	-$19,484
Percent	5.87%	-7.52%	-3.23%	-14.90%	-12.92%	-9.57%
Middle 15 states						
Amount	-$11,567	$14,113	$5,953	$30,300	$26,394	$19,708
Percent	-3.07%	3.75%	1.58%	8.05%	7.01%	5.24%
Smallest 13 states						
Amount	-$380	$1,186	$623	$16	-$110	-$224
Percent	-0.21%	0.67%	0.35%	0.01%	-0.06%	-0.13%
By per capita TTR						
Highest 13 states						
Amount	$13,700	-$49,599	-$30,528	-$69,858	-$58,568	-$44,448
Percent	6.73%	-24.37%	-15.00%	-34.33%	-28.78%	-21.84%
Middle 15 states						
Amount	-$8,702	$31,568	$19,164	$47,310	$45,256	$33,860
Percent	-2.31%	8.39%	5.09%	12.57%	12.03%	9.00%
Lowest 13 states						
Amount	-$4,998	$18,031	$11,364	$22,549	$13,312	$10,588
Percent	-2.82%	10.16%	6.40%	12.70%	7.50%	5.96%

The balanced equity options achieve less dramatic redistributive effects. Option 3 decreased the exponent, β, from 1.0 to 0.7, effectively limiting the funding redistribution from higher to lower income states and thus curtailed the increase that would occur among the middle- and lowest-income states. Comparing options 2 and 3 in table VI.3 shows the reduction for high-income states falls from -24 percent to -15 percent. The gain among middle- and low-income states is curtailed accordingly.

Eliminating the cost factor (option 4) from the formula has the opposite effect. Funding for the highest-income states is nearly the same as under option 2, and the gains to the middle- and low-income states are also similar. This conclusion suggests that reducing the exponent from 1.0 to 0.7 and eliminating the cost factor have roughly offsetting effects in terms of the extent to which funding is targeted to low-income states. This effect occurs because low-income states tend to be low-cost states. Consequently, eliminating the cost factor roughly offsets the reduced income targeting that results from lowering the exponent to 0.7.

Option 5 demonstrates that placing a ceiling on OAFP only moderates the funding increase of the lowest-income states and moderates the reduction among high-income states, while leaving the middle-income group unaffected. Again, the cost factor is not used in this option. The middle-income states are largely unaffected by this change; the gain to the lowest-income states is reduced from 12.7 percent to 7.5 percent, while the corresponding reduction among high-income states falls from –34.3 percent to –28.8 percent.

Finally, option 6 demonstrates that further reducing the exponent further moderates the funding loss among high-income states, falling from –28.8 percent to –21.8 percent, and reduces the gain among middle- and low-income states from 12 percent to 9 percent and 7.5 percent to 6 percent, respectively. Again, the cost factor is not used in this option.

State Funding Amounts Under GAO Formula Options

The impact on each state's funding amount varies considerably. In table VI.4 we compare each state's funding amount for fiscal year 1993 with what they would receive if each formula option distributed the same $757.4 million funding amount. Each state's funding amount for fiscal year 1993 is shown, and the percent change in funding under each of the options is shown in the remaining columns. Actual funding amounts under each option are shown in table VI.5.

Table VI.4: Title III Formula Allocations and the Percent Change in Allocations From the GAO-Proposed Equity Options, Fiscal Year 1993

States	Current allocation	Formula options: Beneficiary equity #1	Taxpayer equity #2	Balanced equity options #3	#4	#5	#6
Alabama	$12,443,808	-2.8%	33.0%	26.5%	38.1%	24.4%	21.0%
Alaska[a]	3,860,888	0	0	0	0	0	0
Arizona	9,617,154	8.7	28.2	19.0	23.0	30.7	22.7
Arkansas	8,535,259	-9.7	42.5	29.7	47.2	17.7	14.5
California	71,593,899	10.1	-41.9	-32.3	-41.5	-37.9	-26.1
Colorado	7,579,540	-0.3	-49.1	-35.7	-33.4	-29.2	-21.0
Connecticut	10,788,799	6.9	-19.3	-9.8	-36.8	-32.8	-25.0
Delaware[a]	3,860,888	0	0	0	0	0	0
District of Columbia[a]	3,860,888	0	0	0	0	0	0
Florida	48,285,368	9.3	75.1	57.6	56.5	30.7	27.1
Georgia	15,229,845	1.9	-29.9	-18.7	-12.7	-7.2	-4.8
Hawaii[b]	3,934,808	-0.7	11.1	0.4	-1.9	-1.9	-1.9
Idaho[b]	3,906,539	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2
Illinois	35,516,551	-2.8	-15.1	-11.7	-14.5	-9.1	-8.9
Indiana	16,667,921	-8.5	-5.5	-6.5	7.1	13.8	7.5
Iowa	10,441,164	-11.1	20.5	8.1	29.9	16.0	12.9
Kansas	8,398,805	-9.6	3.7	-0.7	15.0	16.4	13.2
Kentucky	11,424,796	-9.5	10.2	7.4	18.6	15.9	12.7
Louisiana	11,573,982	-4.1	5.4	3.3	14.4	21.2	14.0
Maine	4,095,877	-5.7	7.7	-0.9	7.5	11.7	6.6
Maryland	12,105,916	4.6	-38.1	-21.2	-31.6	-27.4	-19.5
Massachusetts	20,090,885	5.8	6.2	1.0	-17.5	-12.3	-11.2
Michigan	26,554,303	-4.9	-14.6	-11.6	-6.0	-0.1	-2.2
Minnesota	13,128,289	-4.6	-14.8	-13.9	-4.4	1.6	-0.6
Mississippi	7,973,881	-6.3	42.8	29.0	52.0	23.8	20.4
Missouri	17,394,341	-7.1	12.9	6.8	20.4	18.4	15.2
Montana[a]	3,860,888	0	0	0	0	0	0
Nebraska	5,619,061	-9.9	12.3	7.8	17.1	14.0	10.8
Nevada[b]	3,952,673	-2.3	-2.3	-2.3	-2.3	-2.3	-2.3
New Hampshire[b]	3,930,385	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8
New Jersey	25,059,178	5.1	-22.3	-15.0	-35.5	-31.4	-24.2
New Mexico	4,064,724	-5.0	-5.0	-5.0	1.1	7.4	1.9
New York	59,528,710	6.6	7.4	6.7	-17.5	-12.3	-11.1

(continued)

States	Current allocation	Formula options: Beneficiary equity #1	Taxpayer equity #2	Balanced equity options #3	#4	#5	#6
North Carolina	18,116,462	0.3	1.9	1.5	15.7	22.9	16.5
North Dakota[a]	3,860,888	0	0	0	0	0	0
Ohio	33,733,071	-7.1	-1.0	-0.3	6.5	13.2	7.0
Oklahoma	10,407,873	-7.7	28.9	18.6	31.6	17.4	14.2
Oregon	8,822,016	-3.5	15.0	5.9	16.2	19.2	15.0
Pennsylvania	43,851,246	-5.3	26.1	18.3	19.3	14.8	11.6
Rhode Island	4,004,384	-3.6	23.8	13.7	7.4	4.3	1.4
South Carolina	8,939,853	-0.7	7.3	6.2	21.1	27.5	20.5
South Dakota[a]	3,860,888	0	0	0	0	0	0
Tennessee	14,662,584	-3.5	13.3	9.9	19.2	21.5	17.7
Texas	40,017,295	1.3	-28.6	-14.6	-14.3	-9.0	-6.5
Utah[b]	4,012,455	-3.8	-3.8	-3.8	-3.8	-3.8	-3.8
Vermont[a]	3,860,888	0	0	0	0	0	0
Virginia	15,285,026	0.0	-51.8	-34.1	-27.1	-22.5	-15.6
Washington	12,808,320	0.2	-20.0	-12.2	-11.1	-5.5	-4.8
West Virginia	6,787,523	-14.3	36.2	24.6	36.7	9.8	6.8
Wisconsin	15,585,323	-9.4	-2.7	-6.8	9.9	16.3	9.5
Wyoming[a]	3,860,888	0	0	0	0	0	0
United States	**$757,356,998**	**0**	**0**	**0**	**0**	**0**	**0**

[a]AoA's calculation of a state receiving the minimum 0.05 percent funding.

[b]GAO's calculation of a state receiving the minimum 0.05 percent funding.

[c]Total does not add because of rounding.

Table VI.5: Title III Allocations Under the GAO-Proposed Equity Options

Dollars in thousands

	Formula options					
	Beneficiary equity	Taxpayer equity	Balanced equity options			
States	#1	#2	#3	#4	#5	#6
Alabama	$12,090	$16,549	$15,231	$17,188	$15,478	$15,054
Alaska	3,861	3,861	3,861	3,861	3,861	3,861
Arizona	10,457	12,330	11,723	11,826	12,567	11,800
Arkansas	7,709	12,166	10,941	12,564	10,050	9,774
California	78,802	41,624	53,351	41,852	44,472	52,895
Colorado	7,560	3,861	4,850	5,047	5,363	5,991
Connecticut	11,534	8,707	9,536	6,823	7,251	8,087
Delaware	3,861	3,861	3,861	3,861	3,861	3,861
District of Columbia	3,861	3,861	3,861	3,861	3,861	3,861
Florida	52,779	84,572	75,904	75,567	63,122	61,391
Georgia	15,518	10,671	12,134	13,297	14,129	14,499
Hawaii	3,906	4,373	4,212	3,861	3,861	3,861
Idaho	3,861	3,861	3,861	3,861	3,861	3,861
Illinois	34,536	30,144	31,313	30,376	32,278	32,362
Indiana	15,255	15,746	15,513	17,845	18,962	17,920
Iowa	9,281	12,582	11,601	13,567	12,116	11,784
Kansas	7,597	8,708	8,338	9,656	9,776	9,508
Kentucky	10,344	12,591	11,880	13,545	13,243	12,880
Louisiana	11,096	12,194	11,805	13,236	14,026	13,196
Maine	3,861	4,412	4,191	4,401	4,573	4,367
Maryland	12,657	7,493	9,097	8,275	8,793	9,739
Massachusetts	21,260	21,336	21,194	16,581	17,619	17,845
Michigan	25,255	22,673	23,328	24,955	26,518	25,977
Minnesota	12,524	11,187	11,530	12,555	13,341	13,043
Mississippi	7,475	11,390	10,294	12,117	9,871	9,600
Missouri	16,167	19,634	18,537	20,943	20,598	20,033
Montana	3,861	3,861	3,861	3,861	3,861	3,861
Nebraska	5,065	6,312	5,924	6,583	6,403	6,228
Nevada	3,861	3,861	3,861	3,861	3,861	3,861
New Hampshire	3,861	3,861	3,861	3,861	3,861	3,861
New Jersey	26,342	19,472	21,503	16,166	17,179	19,005
New Mexico	3,861	3,861	3,861	4,110	4,367	4,140
New York	63,446	63,949	63,441	49,123	52,198	52,919

(continued)

Dollars in thousands

	Formula options					
	Beneficiary equity	Taxpayer equity	Balanced equity options			
States	# 1	# 2	# 3	# 4	# 5	# 6
North Carolina	18,173	18,457	18,269	20,960	22,273	21,114
North Dakota	3,861	3,861	3,861	3,861	3,861	3,861
Ohio	31,343	33,402	32,610	35,932	38,182	36,091
Oklahoma	9,608	13,411	12,298	13,697	12,221	11,886
Oregon	8,514	10,148	9,623	10,250	10,518	10,141
Pennsylvania	41,532	55,306	51,176	52,297	50,326	48,946
Rhode Island	3,861	4,959	4,557	4,301	4,176	4,061
South Carolina	8,873	9,592	9,327	10,826	11,400	10,777
South Dakota	3,861	3,861	3,861	3,861	3,861	3,861
Tennessee	14,155	16,609	15,811	17,478	17,809	17,265
Texas	40,540	28,588	32,171	34,289	36,435	37,429
Utah	3,861	3,861	3,861	3,861	3,861	3,861
Vermont	3,861	3,861	3,861	3,861	3,861	3,861
Virginia	15,282	7,369	9,890	11,149	11,847	12,904
Washington	12,829	10,243	10,983	11,387	12,099	12,196
West Virginia	5,816	9,246	8,307	9,276	7,456	7,251
Wisconsin	14,124	15,159	14,770	17,121	18,129	17,066
Wyoming	3,861	3,861	3,861	3,861	3,861	3,861
United States	**$757,357**	**$757,357**	**$757,357**	**$757,357**	**$757,357**	**$757,357**

Note: Totals do not add because of rounding.

The GAO Options Improve Equity Relative to the Current Formula

In general, the GAO formula options offer substantial improvements over the current formula allocations. Using the beneficiary equity criteria—potential caseloads and costs—every GAO option improves upon the current formula. Under taxpayer equity, all options offer an improvement over the current formula allocation, except option 1. Table VI.6 reports summary measures of equity improvement[6] for the six options. Larger values indicate greater distributional inequities, and smaller values indicate smaller distributional inequities. The first row in

[6]The summary measures are weighted standard deviations. Larger values indicate greater distributional inequities among the states, and smaller values indicate smaller distributional inequities. For beneficiary equity, the values analyzed are the grants per person in need, as reported in table V.1. For taxpayer equity, the values are the tax burden state taxpayers would have to pay to finance an average basket of title III services, as reported in table V.2.

table VI.6 shows the summary statistic for beneficiary equity for the current formula allocations and the GAO options. The second row in the table shows the taxpayer equity statistics.

Under the beneficiary equity criteria, the beneficiary equity option shows dramatic improvement over the current distribution. The remaining four GAO options show higher levels of beneficiary inequity. Under the taxpayer equity criteria, every GAO option significantly improves upon taxpayer equity. For example, the beneficiary equity option has the highest taxpayer inequity among the GAO options, and yet the taxpayer inequity under this option is less than half the value under the current formula. The taxpayer equity option has the least taxpayer inequity.

Table VI.6: Equity Statistics for Current AoA Allocations and the GAO Options Using Social Need

		Formula options					
		Beneficiary equity	Taxpayer equity	Balanced equity			
Equity criteria	Current formula	#1	#2	#3	#4	#5	#6
Beneficiary	0.088	0	0.355	0.263	0.340	0.278	0.222
Taxpayer	0.590	0.236	0.012	0.072	0.087	0.142	0.150

The GAO beneficiary equity option outperforms the current formula allocations under our equity standards. The beneficiary equity option has the best beneficiary equity, and yet still improves upon the current formula under taxpayer equity. The drawback to the beneficiary equity option, however, is the large number of states losing funds under this option: 31 states lose funding, while only 12 gain (see table IV.2).

On the other hand, the balanced equity options offer a blend of the beneficiary and taxpayer equity options without as large a redistribution of money and with more states losing funds than gaining. For example, option 5 shows improvements over the current allocations and has more states gaining funds than losing.

Some States Are Consistently Underfunded Relative to the Equity Standards Considered

Overall, through our calculations, the six options presented show that three states— Arizona, Florida, and North Carolina—systematically receive lower funding under the current formula than under any of the six options (see table VI.7). Another 15 states receive less funding than under five of the six options presented. Because these options were designed to show the full range of possible outcomes under the two equity standards, we conclude that these 18 states are underfunded based on criteria that

reflect potential caseloads, the cost of providing services, and financing capacity.

Conversely, eight states—Colorado, Idaho, Illinois, Michigan, Nevada, New Hampshire, Utah, and Virginia—receive higher funding under the current formula than under any of the six equity-based formula options. An additional eight states receive higher funding under the current formula than under five of the six options we considered. Consequently, we conclude that these 16 states receive more funding under the current formula than would be justified on the basis of our three need indicators of potential caseloads, cost, and financing capacity. Overfunded states are generally scattered across the country but outside the Southeast.

Table VI.7: States Systematically Losing or Gaining Funds

States receiving less funding under current formula	States receiving more funding under current formula
Alabama	California
Arizona	**Colorado**
Arkansas	Connecticut
Florida	Georgia
Iowa	**Idaho**
Kentucky	**Illinois**
Louisiana	Maryland
Mississippi	**Michigan**
Missouri	Minnesota
Nebraska	**Nevada**
North Carolina	**New Hampshire**
Oklahoma	New Jersey
Oregon	Texas
Pennsylvania	**Utah**
Rhode Island	**Virginia**
South Carolina	Washington
Tennessee	
West Virginia	

Note: States in boldface represent those states that receive more/less funding under all GAO formula options.

Providing a Transition to a New OAA Formula

The adoption of a more equitable formula for distributing OAA grant funds could cause some states to receive fewer funds so that others with greater needs could receive more. When a new federal aid formula is implemented, it often provides a transition period so that grant recipients have time to adjust, especially those recipients whose grants will be reduced. The rationale for the transition to a new allocation formula is that a phase-in period helps to avoid dramatic changes in state funding, especially for states facing significant reductions. A new formula should foster predictability and stability so as to allow states to develop long-range planning and program commitments, as well as to avoid major disruptions to existing state services.

A redesigned interstate funding formula would mean changes for the states, both in the standards for receiving title III funding and in the amounts received. The Congress would need to determine the rate at which and the way in which those changes would be implemented. Central to this issue would be a choice between holding title III allocations at the current level or raising them so that no state experiences a reduction in its present level of funding.

Providing a Transition

Under the following transition alternative, the overall title III appropriation is assumed to remain at its current level of $757 million. We illustrate one formula transition that would gradually shift grant funding from the existing formula to a new formula over a 5-year period (see table VII.1). The allocations are divided between two formulas: the current allocation formula and formula option 5, described in appendix VI. During the transition period, the amount of money allocated under the current formula is reduced by 20 percent each year; the amount of money allocated under the new formula is increased by 20 percent each year. Table VII.1 shows the transitional allocations starting with the current allocation in fiscal year 1993 and ending in fiscal year 1998 with the new formula allocation.

Alternative transition periods can be formulated to either shorten the time to a new formula or lengthen the time. For example, to minimize the disruptive effect of a new formula, the transition period could be extended to 10 years, whereby the changes in allocations would become smaller.

Table VII.1: Transition From Current Formula Allocations to the Balanced Equity Formula #5, 5-Year Transition

Dollars in thousands

State	FY 1993 current formula	FY 1994 80-20 split	FY 1995 60-40 split	FY 1996 40-60 split	FY 1997 20-80 split	FY 1998 GAO formula
Alabama	$12,444	$13,051	$13,658	$14,264	$14,871	$15,478
Alaska	3,861	3,861	3,861	3,861	3,861	3,861
Arizona	9,617	10,207	10,797	11,387	11,977	12,567
Arkansas	8,535	8,838	9,141	9,444	9,747	10,050
California	71,594	66,170	60,745	55,321	49,897	44,472
Colorado	7,580	7,136	6,693	6,250	5,807	5,363
Connecticut	10,789	10,081	9,373	8,666	7,958	7,251
Delaware	3,861	3,861	3,861	3,861	3,861	3,861
District of Columbia	3,861	3,861	3,861	3,861	3,861	3,861
Florida	48,285	51,253	54,220	57,187	60,155	63,122
Georgia	15,230	15,010	14,790	14,569	14,349	14,129
Hawaii	3,935	3,920	3,905	3,890	3,876	3,861
Idaho	3,907	3,897	3,888	3,879	3,870	3,861
Illinois	35,517	34,869	34,221	33,573	32,926	32,278
Indiana	16,668	17,127	17,586	18,045	18,503	18,962
Iowa	10,441	10,776	11,111	11,446	11,781	12,116
Kansas	8,399	8,674	8,950	9,225	9,501	9,776
Kentucky	11,425	11,788	12,152	12,516	12,879	13,243
Louisiana	11,574	12,064	12,555	13,045	13,535	14,026
Maine	4,096	4,191	4,287	4,382	4,478	4,573
Maryland	12,106	11,443	10,781	10,118	9,456	8,793
Massachusetts	20,091	19,596	19,102	18,608	18,113	17,619
Michigan	26,554	26,547	26,540	26,532	26,525	26,518
Minnesota	13,128	13,171	13,213	13,256	13,299	13,341
Mississippi	7,974	8,353	8,733	9,112	9,492	9,871
Missouri	17,394	18,035	18,676	19,317	19,957	20,598
Montana	3,861	3,861	3,861	3,861	3,861	3,861
Nebraska	5,619	5,776	5,933	6,090	6,247	6,403
Nevada	3,953	3,934	3,916	3,898	3,879	3,861
New Hampshire	3,930	3,916	3,903	3,889	3,875	3,861
New Jersey	25,059	23,483	21,907	20,331	18,755	17,179
New Mexico	4,065	4,125	4,186	4,246	4,307	4,367
New York	59,529	58,063	56,596	55,130	53,664	52,198
North Carolina	18,116	18,948	19,779	20,610	21,441	22,273

(continued)

Dollars in thousands

State	FY 1993 current formula	FY 1994 80-20 split	FY 1995 60-40 split	FY 1996 40-60 split	FY 1997 20-80 split	FY 1998 GAO formula
North Dakota	3,861	3,861	3,861	3,861	3,861	3,861
Ohio	33,733	34,623	35,513	36,402	37,292	38,182
Oklahoma	10,408	10,771	11,133	11,496	11,859	12,221
Oregon	8,822	9,161	9,500	9,839	10,179	10,518
Pennsylvania	43,851	45,146	46,441	47,736	49,031	50,326
Rhode Island	4,004	4,039	4,073	4,107	4,141	4,176
South Carolina	8,940	9,432	9,924	10,416	10,908	11,400
South Dakota	3,861	3,861	3,861	3,861	3,861	3,861
Tennessee	14,663	15,292	15,921	16,551	17,180	17,809
Texas	40,017	39,301	38,584	37,868	37,152	36,435
Utah	4,012	3,982	3,952	3,922	3,891	3,861
Vermont	3,861	3,861	3,861	3,861	3,861	3,861
Virginia	15,285	14,597	13,910	13,222	12,535	11,847
Washington	12,808	12,667	12,525	12,383	12,241	12,099
West Virginia	6,788	6,921	7,055	7,188	7,322	7,456
Wisconsin	15,585	16,094	16,603	17,111	17,620	18,129
Wyoming	3,861	3,861	3,861	3,861	3,861	3,861
United States	**$757,357**	**$757,357**	**$757,357**	**$757,357**	**$757,357**	**$757,357**

Note: Totals do not add because of rounding.

Comments From the Department of Health and Human Services

DEPARTMENT OF HEALTH & HUMAN SERVICES — Office of Inspector General

Washington, D.C. 20201

DEC 22 1993

Mr. Joseph F. Delfico
Director, Income Security Issues
United States General
Accounting Office
Washington, D.C. 20548

Dear Mr. Delfico:

Enclosed are the Department's comments on your draft report, "Older Americans Act Grants: Funding Formula Could Better Reflect State Needs." The comments represent the tentative position of the Department and are subject to reevaluation when the final version of this report is received.

The Department appreciates the opportunity to comment on this draft report before its publication.

Sincerely yours,

June Gibbs Brown
Inspector General

Enclosure

COMMENTS OF THE DEPARTMENT OF HEALTH AND HUMAN SERVICES
ON THE U.S. GENERAL ACCOUNTING OFFICE'S DRAFT REPORT
"OLDER AMERICANS ACT GRANTS: Funding Formula Could
Better Reflect State Needs"

Overview

The General Accounting Office (GAO) was asked to review the current allocation under the Older Americans Act (OAA) to determine if any other options existed to address variances among States due to social and economic differences and differences in concentration of older individuals in greatest need.

The GAO applied various types of data to develop alternative formulas that would approach "beneficiary equity," to permit States to purchase a comparable level of services for elderly persons at risk, and "taxpayer equity," to consider the degree to which States are able to finance a considerable level of services with comparable burdens on State taxpayers.

The GAO notes that a single formula cannot achieve both standards at the same time, and therefore describes six different alternative formula allocations under the OAA. The GAO made its recommendation to Congress.

GAO Recommendation to Congress

To better ensure that the distribution of Title III funds is based on economic and social indicators of need, we recommend that the Congress improve the Older Americans Act's interstate funding formula to better reflect the goal of helping the elderly maintain an independent lifestyle. This could be achieved by adopting a formula, to be implemented over a multi-year period, for distributing Title III funds that reflect State needs, and specifically takes into account the issues of beneficiary and taxpayer equity.

Department Comments

Because the GAO's recommendations are made to Congress and not to the Department, we are not going to make specific comments about the various formulas proposed by the GAO as alternatives to the present OAA interstate funding formula. We should, however, make some general comments about the issues involved.

Our major concern involves some of the data sources used by the GAO in their analyses. Any formula for distributing funds to States should be based on data that is reliably produced from an independent (preferably Federal) source and that is routinely updated on a regular basis. Some of the GAO data does not meet this test.

- In one instance, to develop indicators of dependency, the GAO relies on techniques described in the American Journal of Public Health by researchers Jennifer M. Elston, Gary G. Koch and William G. Weissert in their article "Regression-Adjusted Small Area Estimates of Functional Dependency in the Non-institutionalized American Population Age 65 and Over."

  A drawback noted by the GAO in the use of this method is that it is based on the relationship in 1984 between people with deficiencies in Activities of Daily Living or Instrumental Activities of Daily Living and the socio-economic characteristics of those same people. Given the changes in American demographics as the relatively-large age cohort of the "baby boom" generation ages, we cannot be as sanguine as the GAO in their belief that this critical statistical measure is not subject to large change over time.

- In developing a cost index to measure State cost differences, the GAO indicates that they have had to use some judgement, because of the lack of available data on service costs. We would be concerned if the statute were changed to distribute OAA funds to States based on judgements rather than hard data.

- We are concerned that the concept of financial capacity of States to deliver services may take into account the amount expended by each State on OAA services. Except for a limited matching requirement and maintenance of effort requirements, the OAA does not mandate that States provide any level of OAA services by using their own resources.

We should mention that the ability of States to target funds on those most in need depends also on the methods used by the States themselves to distribute funds within the State. Although it may be outside the scope of this report, we believe policymakers should be aware that many of the same issues also need to be addressed at the State level.

We should also note that the GAO report states on page 4 that the Department "incorrectly calculates State grants." We are already on record as disagreeing with that conclusion by the GAO, and reiterate our disagreement here.

Major Contributors to This Report

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Related GAO Products

Maternal and Child Health: Block Grant Funds Should Be Distributed More Equitably (GAO/HRD-92-5, Apr. 2, 1992).

Substance Abuse Funding: High Urban Weight Not Justified by Urban-Rural Differences in Need (GAO/T-HRD-91-38, June 25, 1991).

Mental Health Grants: Funding Not Distributed in Accordance With State Needs (GAO/T-HRD-91-32, May 16, 1991).

Adequacy of the Administration on Aging's Provision of Technical Assistance for Targeting Services Under the Older Americans Act (GAO/T-PEMD-91-3, Apr. 25, 1991).

Drug Treatment: Targeting Aid to States Using Urban Population as Indicator of Drug Use (GAO/HRD-91-17, Nov. 27, 1990).

Federal Formula Programs: Outdated Population Data Used to Allocate Most Funds (GAO/HRD-90-145, Sept. 27, 1990).

Older Americans Act: Administration on Aging Does Not Approve Interstate Funding Formulas (GAO/HRD-90-85, June 8, 1990).

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