

FORMULAS FOR VARIABLE FEDERAL GRANTS-IN-AID

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THE WIDE DIFFERENCES in the financial resources of the States greatly complicate the determination of methods of allocating Federal grants-in-aid for welfare services. Care must be exercised to avoid accentuating variations from State to State in either the level of welfare services or the fiscal burden on the State, if State participation in financing such services is required. The use of Federal grants-in-aid to narrow differences among the States with respect to both the level of welfare services and the fiscal burden of these services is commonly referred to as equalization.

If matching is required at a ratio uniform for all States, the States with large financial resources tend to obtain relatively larger grants than States with smaller resources. This tendency lessens the likelihood that Federal programs using the 50-50 matching formula will result in reasonably adequate welfare services or payments to needy persons irrespective of the State in which they reside. Differences among the States in the relative amount of Federal grants received under this formula lead almost inevitably to variation in the level of payments or services to recipients. In an analysis of these problems in the January Bulletin¹ it was suggested that the relative income status of the inhabitants of each State—as expressed in widely accepted figures representing State per capita incomes—could provide an appropriate index on which to base variation in the degree of Federal financial participation in State welfare programs, provided such variation is considered a sound policy.

The present article examines the elements necessary in grant-in-aid formulas, if distribution of grants among the States is related to differences in their per capita incomes. The discussion is in terms primarily of objective formulas, written specifically into the enabling statutes in such a way that the application of the prescribed formula to the State per capita income figures automatically yields the apportionment ratios to be used. The inclusion of a formula of this type in the statute itself has much to commend it.

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¹ Gerig, Daniel S., Jr., "The Financial Participation of the Federal Government in State Welfare Programs," *Social Security Bulletin*, Vol. 3, No. 1 (January 1940), pp. 21-33.

Formulas if State Financial Participation Not Required

If State participation in the cost of a welfare program is not made a specific condition for receipt of Federal grants-in-aid, the grants will nearly always be in terms of a fixed dollar amount to be distributed among the States. In this case the formula need consist simply of a method of allotting this fixed sum. Since the size of the grant to each State is independent of whether it expends any funds of its own on the program, or of how much it expends, the distribution of any given appropriation can be related directly to variations in per capita income as well as to other significant variables.

This type of grant is exemplified by portions of the grants under the Social Security Act for public-health work and for services for crippled children which are allocated in accordance with the "financial need" of the States. States are not required to match these grants, and both the Public Health Service and the Children's Bureau, in administering them, use State per capita incomes as one factor in determining financial need.² The Federal aid-to-education bills (S. 1305 and H. R. 3517, 76th Cong., 1st sess.) also contain a formula which does not require any specific expenditure from State funds as a condition for receipt of the grants and which bases the size of the grant to each State in part upon an index of the State's "financial ability." The measure of financial ability proposed in these bills is the estimated revenue which could be raised in each State by use of what is essentially a "model" tax system. Grants to States for unemployment compensation administration under title III of the Social Security Act also have no requirement of matching. However, since these grants are to cover the entire cost of the "proper and efficient administration" of State laws, there is no necessity for making allowance for differences in State financial resources in the allotment of amounts.

² See secs. 512 (b), 514 (c), and 602 of the Social Security Act as amended; Regulations of the Surgeon General, U. S. Public Health Service, May 23, 1930, as amended Dec. 20, 1930; and *Hearings Before the Subcommittee of the Committee on Appropriations, House of Representatives . . . on the Department of Labor—Federal Security Agency Appropriation Bill for 1941*, (76th Cong., 3d sess.), pt. 1, pp. 301-302.

In allotting the appropriation for a grant-in-aid program requiring no State financial participation, it is necessary to take direct account not only of differences in financial resources but also of variations in the need of the States for the particular welfare services provided by the program. This determination of need may necessitate recognition of several factors. In one way or another, some weight must be given to differences in total population, to ensure larger grants for the more populous States. If the program is limited to a special category of individuals—such as children, crippled children, the aged, the blind, the disabled, or workers covered under a social insurance plan—the allotment formula should take account also of variations among the States in the proportion of the total population which is represented in the special category. Finally, if only the “needy” in these special categories are eligible for the services provided, the allotment formula must give weight to the proportion of total persons in the category covered by the program who are dependent and come within the definition of “needy.” The relative need of each State, after giving due weight to all factors of this sort, can be expressed for purposes of the formula as a percentage of the aggregate national need.

Formulas can readily be developed for combining measures of State need, on the one hand, and per capita income figures or other measures of State financial resources, on the other. One possible procedure is to divide the Federal appropriation into two parts, one of which is distributed on the basis of the percentage of the total national need in each State, and the other on the basis of relative differences in State per capita incomes. In the latter distribution, after the States have been arrayed in the order of their per capita incomes, the ratios of the per capita income of the State or States having the largest per capita income to that of each State can be multiplied by the population of each State. This yields a series of weighted population figures adjusted for differences in per capita income which can be used for making the allotment to each State.

A somewhat different method is to develop an index for each State by dividing the percentage representing the State's proportion of total national need by the percentage representing the State's proportion of total financial resources. These State indexes can then be used to allocate

the entire appropriation, by allotting to each State an amount which is the same percentage of the total appropriation as the index for each State is of the sum of the indexes for all States.³

The Federal cost for a given level of payments or services is obviously higher when State financial participation is not required. Moreover, State participation is desirable, particularly in a program involving large grants-in-aid, as one method of encouraging the careful use of the grants by the receiving jurisdiction. Wise and prudent use of Federal funds under the public assistance programs is more likely, for example, when States are required to finance part of the payment to each recipient. For these reasons, and also because the larger Federal grant-in-aid programs typically require the expenditure of some funds from State sources, the remainder of this analysis of variable-grant formulas related to State per capita incomes proceeds on the assumption that States are required to participate in the cost.

Formulas if State Participation Required

Two basic types of Federal grant-in-aid programs requiring State financial participation may be distinguished for purposes of the present discussion. In one type, the enabling authorization specifically limits the total amount which can be appropriated annually for the Federal grants, and only a fixed and definite sum is available for distribution among the States. Most existing Federal grant programs requiring State participation, other than those for public assistance, are of this type.

In the second type, the enabling act authorizes an annual appropriation of “a sum sufficient to carry out the purposes of the program.” Such a provision may be construed in one sense as authorizing an unlimited amount of grants within the framework of other provisions of the law relating to State participation, maximum payments or services to individual recipients, and so forth. A system of “open-end grants” may be necessary for broad and comprehensive welfare programs in which the aggregate need of the States is both large and somewhat indeterminate. The grants-in-aid authorized by the three public assistance titles of the Social Security Act are of

³ For a discussion of formulas taking into account both financial resources and need where no specific State participation is required, see Advisory Committee on Education, *Principles and Methods of Distributing Federal Aid for Education*, Staff Study No. 5, 1939.

this type. Part of the grants proposed in the national health bill⁴ introduced by Senator Wagner would be of this type after the first few years of operation; and the grants for "general public assistance" proposed in H. R. 5736,⁵ introduced by Representative Voorhis, would be of this type after the first year of operation.

The problem of constructing formulas to take account of differences in the financial resources of the States, as measured by their per capita incomes, varies somewhat for each of the two types.

State Participation With Specific Limit on Total Grants

Two distinct elements must be present in the formula if the authorization prescribes a specific maximum dollar amount. In the first place, it must establish rules for allotting the fixed sum among the States, to prevent a few States from obtaining more than their fair share of the total grants at the expense of other States. Such rules must take into account differences among the States in the need for the particular program, since some States are much larger than others and since the need for the service provided may differ widely in relation to the size of the State. Some of the factors to be taken into account in allotting a fixed sum on the basis of need have already been mentioned.

The formula must also establish the terms upon which a State can obtain the funds allotted to it. Special attention can and should be paid to differences in the financial resources of the States—particularly if large expenditures from State funds are required for the States to take full advantage of their allotments. Otherwise, even though a liberal allotment may be assigned to a State with large need, the relative smallness of its financial resources may prevent it from taking full advantage of its allotment.

The construction of a formula for relating to their per capita incomes the terms upon which States obtain their allotments can be accomplished in several different ways. One type of formula establishes varying ratios between Federal grants and expenditures from State funds. Such ratios are applicable to all or any part of the allotment, depending on the amount of expenditure from State funds. The problems of developing a

formula which bases such varying ratios of Federal participation upon differences in State per capita income are similar to those under grant-in-aid programs where the authorization does not place a specific limit on the total amount of grants. These problems are discussed in subsequent sections.

A formula of this general type, with a limited authorization during the first 3 years, is provided in connection with most of the grants proposed in the Wagner health bill (S. 1620). The method of distributing the grants for hospital construction proposed in S. 3230,⁶ as passed by the Senate on May 30, 1940, also bears some general similarities to this type of formula.

The latter bill authorizes grants totaling \$10 million during each of the next 6 fiscal years. It requires the Surgeon General, in fixing the proportion of the total cost of each project covered by the Federal grant, to take into consideration the per capita income of the State applying for a grant, or, if the applicant is not a State, the per capita income of the State in which the applicant is located.⁷ It includes no formula for determining the exact percentage of Federal participation in each project but places minimum and maximum limits of 25 and 90 percent, respectively, upon such participation. An amendment to this bill proposed by Senator Taft also provided that the percentage of the total cost of each project covered by the Federal grant should vary in accordance with the per capita incomes of the applying States, but within a range of from 40 to 90 percent. The exact percentage under this proposed amendment would be fixed by a national advisory hospital council.

A second type of formula for establishing the varying terms upon which the States may obtain the allotments assigned to them prescribes for each State a specific or minimum lump-sum amount to be expended from State funds as a condition for receiving its entire allotment. One

⁴ 76th Cong., 3d sess.; bill introduced by Senators Wagner and George.

⁷ The hospital construction bill as passed by the Senate provides that counties, health or hospital districts, or other political subdivisions, as well as States, may apply for grants. If applications from such subdivisions are approved, the Surgeon General in his determination of the proportion of the total cost of the project to be covered by the Federal grant is required to take into consideration not only the per capita income of the State in which the subdivision is located but also the "financial condition and ability" of the subdivision itself. There are of course wide variations among the per capita incomes of the subdivisions of a State as well as among the States themselves. No official estimates of the per capita incomes of such subdivisions are available at the present time.

⁵ S. 1620, 76th Cong., 1st sess.

⁶ 76th Cong., 1st sess.

method of determining such lump-sum amounts takes into account differences in the income positions of the States by requiring all States to spend from their own funds amounts equivalent to a uniform percentage of the total income of their inhabitants.

It is possible to devise a formula for any given Federal appropriation which will bring into balance the Federal grant to each State and the expenditures from State funds, representing a uniform percentage of the income of its inhabitants, and which will also produce Federal grants, for all States combined, equal to the specified Federal appropriation. If a formula of this sort is used, approximate equalization of welfare services provided by the various State programs can be achieved by relating the Federal allotments directly to the need of each State. At the same time, equalization of the fiscal burden of State participation is achieved through requiring the expenditures from State funds in all States to represent a uniform proportion of the total income of their inhabitants. This general type of formula is similar to that used by some States in distributing school aid to localities.

State Participation Without Specific Limit on Total Grants

For the public assistance programs under the Social Security Act and for other programs having an "open-end" authorization, it is unnecessary to establish an allotment for each State, since the grants obtained by one State do not lessen the amount of grants which other States may obtain. To the extent that its expenditures are eligible for matching in accordance with the conditions imposed by the enabling Federal statute, a State may obtain Federal grants proportionate to the funds it is able and willing to provide. Accordingly, the type of formula required in this case need only establish for each State the ratio between expenditures from State funds and obtainable Federal grants.

Once this ratio is established, the actual amount of grants going to any State is dependent solely upon the legally matchable amount the State spends from its own funds. An allowance for relative differences in the financial resources of the States can be made only by varying the percentage ratios of participation assigned to the various States. The remainder of this article

considers the characteristics which are necessary in a formula of this type so that it will relate effectively the percentage ratios of Federal participation to differences in the per capita incomes of the States.

It is desirable first, however, to refer briefly to a proposed alteration of the 50-50 matching formula which would produce a certain amount of variation in the effective percentages of Federal participation from State to State, although this variation would not be based on an index of financial resources. As applied to the public assistance programs, this alteration requires the Federal grant to cover a larger proportion of the cost of that part of a payment to a recipient below a specified amount than of that part of the payment exceeding the specified amount. An illustration of this type of proposal is contained in S. 3030,⁸ introduced by Senator Connally.

Since the average payment per recipient differs from State to State, this change would cause the effective percentages of Federal participation in total State payments to vary somewhat from one State to another. Moreover, because of the tendency for States with relatively small financial resources to pay smaller amounts per recipient, these effective percentages would tend to be higher for such States than for States with larger resources and, in general, higher levels of payment. For this reason it has been claimed that such a formula would result, indirectly, in a system of variable grants.

A plan of this sort would probably increase substantially the aggregate Federal cost of a particular grant-in-aid program as contrasted with the cost of the 50-50 arrangement, particularly if the Federal share of the first part of the payment to recipients was larger than 50 percent. Although the plan would make additional funds available to the States with smaller resources, it would also increase the amount of Federal participation in the programs of States with larger resources. Moreover, because of the disproportionate increase in outlays from State funds required to maintain average payments above the dividing point, there might be a tendency for the average payment in most States to be frozen at the point of maximum Federal contribution.

If variable ratios of participation are con-

⁸ 76th Cong., 3d sess. A number of other bills have also been introduced which provide for various proportions other than that in S. 3030.

sidered a desirable objective, it seems a sounder method to base them specifically and directly upon an index such as per capita income, which reflects State differences in financial resources. The formula used should be so designed that it produces automatically and objectively the appropriate percentage of Federal participation for each State, given the per capita income of the State. Under such a formula the degree of Federal participation is expressed in a schedule of percentages varying inversely with the per capita incomes of the States, rather than as a uniform percentage for all States.

Selection of a midpoint around which to range such a schedule of percentages presents certain problems. The most obvious alternatives probably are 50 percent, 33½ percent, or 66⅔ percent. The broad policy objectives of a grant-in-aid program must influence the final choice. In the absence of strong contradictory reasons, it is perhaps most appropriate to range the percentages around a midpoint of 50, particularly if a variable-grant formula is substituted in an existing program which previously was on an equal matching basis. In programs in which the national interest is paramount—a program established in connection with the national defense, for example—the Federal percentages might be ranged around 66⅔ percent. In contrast, in programs in which the State interest is considered predominant, the percentages might be ranged around a midpoint of 33½ percent. The subsequent discussion proceeds on the assumption that the percentages are centered around 50, although the formulas outlined could be developed equally well on the basis of a different assumption.

Conversion of Per Capita Incomes to Variable Percentages

While formulas for translating State per capita income differentials into a schedule of variable Federal percentages can be developed in several different ways, four main types have been selected for discussion. These are designated as (a) "linear interpolation" formula, (b) "bracket type" formula, (c) "ratio to midpoint" formula, and (d) "ratio to national average" formula.

The "linear interpolation" formula requires, as the first step, a decision as to what the most favorable and the least favorable Federal percentages shall be. These percentages are assigned

to the two States with the lowest and highest per capita incomes, respectively. The percentages for the remaining States are then calculated by distributing linearly the difference between the maximum and minimum Federal percentage over the range of States. This type of formula is suggested by the provisions of section 1101 (c) of the Wagner health bill, although its use would not be mandatory under that section.

Despite its simplicity this formula has a definite limitation in that the percentages of all States are considerably influenced by the specific per capita incomes of the two States with the lowest and highest per capita incomes. A substantial change from one year to another in the per capita income of either of these two States would affect markedly the percentages for all other States during the following year even though the per capita incomes of the other States remained the same. Despite the general stability of the relative income positions of the States in the past, this limitation lessens somewhat the usefulness of this method.

The percentages resulting from this formula would also be affected appreciably if the island possessions were included in a grant-in-aid program. No official estimate of the per capita income of Puerto Rico is available, but limited information indicates that it is below that of any of the States, the District of Columbia, Alaska, or Hawaii. If Puerto Rico were included in a grant-in-aid program,⁹ its per capita income would constitute one of the two extremes under this formula, and the Federal percentages for all other States—except the State with the highest per capita income—would be noticeably smaller than if Puerto Rico were excluded.

The "bracket type" of formula involves establishing a limited number of brackets, with perhaps 5 or 10 States in each bracket. The same Federal percentage would apply to all States within one bracket. The assignment of States to the different brackets might be based either on the relative ranking of the per capita income of each State in an array—for example, by deciles or quartiles—on the income bracket within which the per capita income of each State falls, such as \$200–\$300, \$300–\$400, and so forth.

⁹ Puerto Rico at present is eligible for the grants provided by titles V and VI of the Social Security Act but not for grants under the 3 public assistance titles. It would be eligible for most of the grants-in-aid proposed in the Wagner health bill.

While such an arrangement may appear fairly workable at first glance, it might necessitate a considerable amount of administrative discretion in determining the brackets. Furthermore, the percentage assigned to any State whose per capita income is near the border line of a bracket would undergo a substantial change if only a slight change in its per capita income shifted it from one bracket to another. Any formula placing such reliance on relatively insignificant variations in the per capita income figures would not be desirable.

The "ratio to midpoint" formula assumes that the figure representing the national per capita income is equated to 50 percent or to whatever midpoint is selected. Specifically, it would require the percentage of total expenditures derived from State funds in each State to bear the same ratio to 50 percent (or other midpoint) as the per capita income of each State bears to the national per capita income. Thus, if the national per capita income for one year were \$500 and the per capita income of a given State were \$250, the percentage of total expenditures to be derived from that State's funds would be one-half of 50 percent or 25 percent. The Federal grant, accordingly, would cover 75 percent of the cost of the program in that State. Similarly, if the per capita income of another State were \$750, the percentage of State participation required in this case would be 75, while the Federal grant would cover only 25 percent of the cost.

A formula of this type might appear logical because of its use of the ratios between State and national per capita incomes. It would result, however, in a rather wide range in the Federal percentages for different States, including a zero Federal percentage where the per capita income of a State is more than double that of the Nation as a whole. This wide range may lessen its desirability, at least until some experience has been gained in operating a variable-grant plan. Moreover, the ratio of State to Federal participation is not the same as the ratio of a State's per capita income to the national per capita income. These characteristics suggest that a still different type of formula might be more desirable.

The fourth type or "ratio to national average" formula also uses the ratios between national and State per capita incomes to determine the ratios between the Federal and State percentages of

participation for each State, but equates the total to 100. In more precise terms, the percentage of Federal participation for each State would bear the same ratio to the percentage of State participation as the national per capita income bears to the per capita income of the State.¹⁰ If the national per capita income were \$500, for example, and the per capita income of a certain State were \$250, the Federal percentage of participation for that State would be 66% and the State percentage would be 33%. If the per capita income of another State were \$750, the Federal percentage would be 40 and the State percentage 60.

One advantage of this "ratio to national average" formula is that, as it is applied to smaller and smaller per capita incomes, it results in Federal ratios of participation which increase at a constantly increasing rate. A second important advantage is that a substantial change in the per capita income of any one State from one year to another can exert only a small influence upon the percentages assigned to all other States, since these other percentages change only to the extent of the shift in the national average resulting from the change occurring in the one State. Moreover, the percentages produced under this⁹ formula would form a continuous series rather than the discrete series which the "bracket" type of formula would produce. In contrast to the "ratio to midpoint" formula, this fourth formula⁷ would result in a somewhat narrower range in the percentages for the various States—probably a desirable characteristic, especially when a plan of variable grants is first established. In view of these considerations, this fourth formula appears superior in many respects to the other three types discussed.

Use of 3-Year Moving Average

In order that the legislatures and administrative agencies of the receiving jurisdictions may be able to plan the financing of their welfare programs reasonably far in advance, a variable-grant formula should be so devised that sudden and substantial changes in the Federal percentages of participation will not occur from one year to the next, except when changes of a genuinely catastrophic nature occur in the income position of a

¹⁰ A partial application of this general type of formula appears in S. 2203 (70th Cong., 1st sess.) introduced by Senator Byrnes, and in H. R. 5736 introduced by Representative Voorhis.

State. A previous analysis¹¹ indicated that, in the past at least, there has been a relatively high degree of stability in the per capita income rankings of most of the States from one year to another. To minimize the possibility of sudden changes in the Federal percentages of participation, however, the formula should relate the percentages, not to the per capita incomes for a single year but to the averages for several years. A span of at least 3 years appears desirable for this purpose. A moving average may be used to accomplish this objective.

The statute establishing a variable-grant plan should also indicate when and how frequently the participation percentages should be recomputed. Since the percentage applicable to a given State would be the same throughout the intervening period, Federal administration of the grants would encounter few problems not already present when the percentages are uniform for all States.

Percentages Resulting From Two Formulas

The arithmetic averages of the per capita incomes of each of the States and the District of Columbia for 1936, 1937, and 1938 are shown in the second column of table 1. The States are arrayed in the ascending order of their average per capita incomes during this 3-year period.

The Federal percentages obtained by applying the "linear interpolation" formula to these per capita income averages are shown in the third column. A Federal percentage of 66% has been assigned to Mississippi, with the lowest per capita income—\$215—and of 33% to the District of Columbia, which has the highest—\$1,210. The percentages for the remaining States have been computed by distributing linearly over the range between the two extremes the difference between these two percentages (33% percent). For convenience, the intermediate percentages have been computed only to the nearest whole number.

This formula produces a Federal percentage of more than 50 percent for all but 5 States and the District of Columbia, which have the highest per capita incomes. It is evident that the substitution of a formula of this sort for a 50-50 matching formula in an existing grant-in-aid program would probably lead to a substantial increase in Federal costs, since the weighted average percentage of

¹¹ See the *Bulletin*, January 1940, p. 32, table 4.

Federal participation for the entire program would be well in excess of 50 percent.

Table 1.—Average State per capita income payments, 1936-38, and Federal percentages of participation derived by two variable-grant formulas

State	Per capita income payments, 1936-38 average ¹	Federal percentages derived from—		Percentage increase or decrease in grants under "ratio to national average" formula as contrasted with 50-50 formula ⁴
		"Linear interpolation" formula ²	"Ratio to national average" formula ³	
(1)	(2)	(3)	(4)	(5)
United States.....	\$339	-----	-----	-----
Mississippi.....	215	66%	66%	100
Arkansas.....	223	66	66%	100
Alabama.....	236	66	66%	100
South Carolina.....	257	65	66%	100
Georgia.....	288	64	65	86
North Carolina.....	291	64	65	86
Tennessee.....	292	64	66	86
Kentucky.....	293	64	65	86
North Dakota.....	316	63	65	70
Oklahoma.....	323	63	63	70
South Dakota.....	340	62	61	56
Virginia.....	357	62	60	50
Louisiana.....	371	61	59	44
West Virginia.....	391	61	58	38
Texas.....	403	60	57	33
New Mexico.....	415	60	56	27
Kansas.....	433	59	55	22
Nebraska.....	435	59	55	22
Iowa.....	449	59	55	22
Missouri.....	452	59	54	17
Vermont.....	461	58	54	17
Florida.....	464	58	54	17
Idaho.....	465	58	54	17
Utah.....	476	58	53	13
Maine.....	480	58	53	13
Indiana.....	481	58	53	13
New Hampshire.....	517	57	51	4
Minnesota.....	519	57	51	4
Wisconsin.....	541	56	50	0
Arizona.....	549	55	50	0
Colorado.....	552	55	49	-4
Pennsylvania.....	563	55	49	-4
Oregon.....	573	55	48	-8
Montana.....	575	55	48	-8
Washington.....	606	54	47	-11
Maryland.....	614	53	47	-11
Wyoming.....	610	53	47	-11
Ohio.....	618	53	47	-11
New Jersey.....	620	53	47	-11
Illinois.....	629	53	46	-15
Michigan.....	632	53	46	-15
Massachusetts.....	685	51	44	-21
Rhode Island.....	690	51	44	-21
Connecticut.....	743	49	42	-28
California.....	826	46	39	-36
Nevada.....	827	46	39	-36
Delaware.....	845	46	39	-36
New York.....	855	45	39	-36
District of Columbia.....	1,210	33%	33%	-60

¹ Based on U. S. Department of Commerce figures, *Survey of Current Business*, April 1940, p. 10.

² Federal percentages obtained by distributing linearly over the range between the highest and lowest per capita incomes the difference between the lowest and highest percentages (33% percent).

³ Federal percentage for each State bears same ratio to State percentage as national per capita income bears to per capita income of State. Maximum limit of 66% percent and minimum limit of 33% percent on Federal percentages assumed.

⁴ Derived by formula: percent of change for a State =

$$\left(\frac{\text{Federal percent}}{100 - \text{Federal percent}} - 1 \right) \times 100$$

Expenditures from State funds are assumed to be the same under either formula.

The Federal percentages obtained by application of the "ratio to national average" formula are shown in the fourth column of the table. To make them comparable with the percentages in the third column, maximum and minimum limits of 66½ percent and 33½ percent, respectively, have been assumed.

The use of the "ratio to national average" formula, with minimum and maximum limits, produces Federal percentages of less than 50 for 18 States and the District of Columbia. For 5 of these—the District of Columbia, New York, Delaware, Nevada, and California—the formula produces Federal percentages below 40 percent. The 3-year averages of the per capita incomes of Arizona and Wisconsin are so close to the national average for the same period that their percentages are on a 50-50 basis. The remaining 28 States are assigned a Federal percentage above 50 by this formula. The 12 States with the lowest 3-year average per capita incomes are assigned Federal percentages of 60 or more.

If no limits are applied, the actual range of the Federal percentages derived by application of the "ratio to national average" formula to the 1936-38 per capita income figures is from 31 to 71. If a range of this magnitude is regarded as undesirable, a provision can be inserted in the formula placing a specific maximum limit, a minimum limit, or both, on the Federal percentages.

Whether a range of Federal participation as large as from 31 percent to 71 percent is desirable, or whether narrower limits should be established, is a matter of broad policy. The range between the 3-year average per capita incomes of Mississippi and the District of Columbia is from \$215 to \$1,210, representing a ratio of about 1 to 5.6. If the Federal percentage of 71, produced by unlimited application of the formula, were assigned to Mississippi, that State would receive a Federal grant of approximately \$2.45 for each dollar of its own funds available for matching. The District of Columbia, assigned a Federal percentage of 31, would receive in contrast a Federal grant of approximately 45 cents for each legally matchable dollar of its own funds. The ratio between 45 cents and \$2.45 is about 1 to 5.4, or very nearly the same as that between the lowest and highest State per capita incomes. These figures indicate that the percentages produced by

use of the "ratio to national average" formula reflect rather faithfully the range in the basic per capita income index.

If statutory minimum and maximum limits on the Federal percentages are considered desirable, they affect somewhat the ratios derived from the formula. The Federal percentage for the District of Columbia is increased slightly, and those for South Carolina, Alabama, Arkansas, and Mississippi are reduced by several points. The range in the percentages after establishing limits of 33½-66½ percent is from 1 to 4. That is, \$1 of State funds when related to the minimum Federal percentage results in a Federal grant of 50 cents, as contrasted with a grant of \$2 if related to the maximum Federal percentage.

The formulas in S. 2203 and H. R. 5736¹² for varying the percentages of Federal participation, based on State per capita incomes, provide for a range of from 50 to 66½ in the Federal percentages. The corresponding range provided in the Wagner health bill is from 33½ to 66½ for three of its titles and from 16½ to 50 for one title. The range in S. 3230¹³ as passed by the Senate is from 25 percent to 90 percent. The amendment to this latter bill proposed by Senator Taft provided a range of from 40 to 90 percent in the ratios of Federal participation based on State per capita incomes.

Effect of Variable Percentages on Amount of Grants

The percentages in the last column of table 1 are presented in order to contrast the amount of grants under a variable-grant formula, such as the "ratio to national average" formula, and under the 50-50 matching formula. The column indicates for each State the percentage by which the amount of Federal grants under the given variable-grant formula would exceed or fall short of the grants under a 50-50 matching formula. The assumption used in the computation of these percentages is that the States maintain expenditures from their own funds at approximately the same level under either type of formula.¹⁴

On these assumptions, 28 States would receive

¹² See footnote 10.

¹³ See footnote 6.

¹⁴ If a variable-grant formula is substituted for a 50-50 matching formula in a program already in operation, it might be considered desirable to require that States assigned a Federal percentage larger than 50 maintain at least the previous level of expenditure from their own funds as a condition of eligibility for the more favorable percentage.

a larger amount of grants under the variable-grant formula than under an equal-matching formula. Hence, the use of this variable-grant formula in a welfare program would enable these States to maintain a higher average payment or service per recipient, a larger number of recipients, or both, than if a 50-50 formula were used.

In contrast, 19 other States would receive a smaller amount of grants under the variable-grant formula than under a 50-50 formula. Expenditures from their own funds thus would have to be larger under the variable-grant formula to maintain at any given level their average payment or service per recipient and the number of recipients. The variable-grant formula would reduce by more than one-fourth the grants to 6 of these States. Since these States have the highest per capita incomes, however, the fiscal burden of a given welfare program upon the total income of their inhabitants, even after raising the additional funds necessary to maintain a given level of operation, would probably be no greater than that in numerous States with smaller per capita incomes.

In order to estimate the percentage change in total Federal grants under a variable-grant formula in contrast to a 50-50 matching formula (assuming expenditures from State funds to be the same under either formula), the percentages in the last column of table 1 have been weighted by the proportions which the grants to each State for old-age assistance were of total grants-in-aid for that purpose in 1939.¹⁵ For the country as a whole, a weighted average increase of 1.2 percent in Federal funds is obtained by this process. This would be equivalent to an increase of about \$3 million in the annual Federal cost of the grants for old-age assistance, and would result in a weighted average ratio of Federal participation of 50.6 percent. The general type of formula used in these computations would therefore come—at least with respect to its cost—within the rule laid down by the President that the making of “proportionately larger Federal grants-in-aid to those States with limited fiscal capacities . . . can and should be accomplished in such a way as to involve little, if any, additional cost to the Federal Government.”¹⁶

¹⁵ On basis of checks issued, as reported by the Office of the Commissioner of Accounts and Deposits of the U. S. Treasury Department.

¹⁶ *Message From the President of the United States Transmittling a Report of the Social Security Board Recommending Changes in the Social Security Act*, H. Doc. 110, 76th Cong., 1st sess.

Degree of Equalization Achieved by Formula

Full equalization under a Federal grant-in-aid program would exist if the grants make possible approximately uniform levels of operation within each State, while the expenditures on the program from State funds constitute approximately the same fiscal burden in each State. This concept has been developed in the past in connection with State school aid to localities. Where full equalization is sought, this State aid is distributed in such a way as to maintain, despite the wide variation in the per capita wealth of different subdivisions, approximately the same school expenditure per child in each locality, provided local funds are raised equivalent to the yield from the same mill levy on assessed property in each locality. In other words, the State aid is so distributed as to make up the difference between the total expenditure required in each locality to achieve the desired standard and the amount raised by the locality itself by the uniform mill levy.

The feasibility of full equalization as an objective of Federal grants for State welfare programs is questionable. For one thing, grants under a full equalization plan must be essentially lump sums. The lump-sum grant method can be utilized only when the aggregate need for the services rendered by a program can be measured readily and expressed as a specific amount for each State. It is difficult to measure and express in dollars the aggregate need in each State for various types of welfare programs, since such need is a result both of the number of needy persons and of the amount of assistance needed by each one. Neither of these variables is subject to precise measurement, and they both undergo change with cyclical fluctuations and shifts in welfare standards. Hence it would be extremely difficult to determine the appropriate lump-sum amounts which should go to each State.

Full equalization, furthermore, would be costly to the Federal Government—particularly if the level of welfare services provided approached a reasonable degree of adequacy—and would require it to assume a high percentage of the total cost of most State welfare programs. This burden on the Federal Government would be the result of the large differentials between tax-raising ability and need for welfare services in the most favorably situated State or States, which would serve as

benchmarks for the equalization, and such relationships in other States. The size of these differentials is a reflection of the wide diversity among the States both in relative needs and resources, and of the tendency for the need for welfare services to be higher in States where financial resources in relation to population are low.

It is not possible to determine the fiscal burden necessary in the different States to finance expenditures from State funds under the variable-grant formulas outlined or the corresponding degree of equalization which the formulas achieve. The amounts of Federal grants to each State under these formulas are dependent upon the amount the State is able and willing to devote to any given welfare program. Thus, the decision regarding the scope of the program in each State is left entirely to the State itself and is not tied to a uniform national standard, as would be necessary under the full equalization plan described above.

Because the varying Federal and State ratios of participation are related to per capita income differentials, the variable-grant formulas outlined above would approach considerably closer to full equalization of services and fiscal burdens than does the 50-50 matching formula. The precise fiscal burden placed on a State by its participation in a particular welfare program, however, would still depend on the extent of the program it chose to maintain. If, for example, a State with relatively small financial resources undertakes a comprehensive and liberal welfare program, the relative fiscal burden occasioned by the program—even with the larger degree of Federal participation in its program resulting from use of a variable-grant formula—will be greater than that of a State with large resources which chooses to undertake a much less comprehensive program.

Treatment of Need in the Formula

The question may properly be raised whether the variable-grant formulas discussed above take sufficient account of State differences in welfare needs. Recognition of such differences may enter into the formulas in two ways.

In the first place, if the enabling authorization places a specific dollar limit upon the total amount of grants, it is necessary to allot this total among the States to prevent some States from receiving a disproportionate share at the expense of other States. Adequate recognition must be given to

State differences in the need for the particular program in making this allotment to ensure that States with greater need can obtain proportionately larger grants. If the enabling authorization does not place a specific dollar limit on the total amount of grants, however, the necessity of allotting a limited sum among the States does not exist. Under such an authorization, just as under the public assistance titles of the Social Security Act, the Federal Government stands ready to match at the prescribed ratios all expenditures from State funds which are legally eligible for such matching. In such a circumstance it is unnecessary to take account of State differences in need for the purpose of limiting the share which each State can obtain of the total.

Account might also be taken of differences in need in determining the ratio of Federal participation assigned to each State. If, in the formula establishing these ratios, allowance is made for State differences in the need for a particular service, dissimilar percentages will be assigned to a single State under different Federal grant-in-aid programs. This variation is a reflection of the diverse age compositions and other characteristics of the States, which cause the need of a given State in relation to that of other States to be larger for one program than for another. If it were considered a sound policy to assign percentages to States which differ from program to program, specific allowance in the formula for differences in need would clearly be desirable.

There is much to be said, however, in favor of assigning to each State a single percentage applicable in all Federal grant programs in which it participates. In this case the States, in apportioning their own funds among the different programs and in determining the scope of their operations under each, could stress those for which the real need in the State was greater, instead of having an inducement to stress the programs in which they were able to receive the largest amount of Federal grants per dollar of expenditure from State funds. If it is considered a sounder public policy to assign a single percentage to each State, recognition of variations among the States in the need for each separate program would not be a necessary element of the formula.

The per capita income of a State is the quotient of the total income of its inhabitants divided by its total population. The population of a State

may be regarded as a measure of its "generalized need" for welfare services of all types.¹⁷ Thus, the use of per capita income in a formula recognizes State differences in general need as well as differences in the aggregate financial resources of the States as measured by the total income of their inhabitants. If it is considered desirable to assign a single percentage to a given State for all Federal grant programs, the use in the formula of a variable representing only generalized need would seem to be a justifiable procedure.

On the assumption, however, that it is considered wise to assign different percentages to a given State for different welfare programs, it is instructive to examine methods of allowing for differences in need in the formula. If the number of potentially eligible recipients in each State can be readily determined from an official census or other reliable source, it is a relatively simple matter to modify the formulas outlined above to take account of differences among the States in the numbers of such persons. If *all* aged persons, for example, were eligible for payments or services under a grant-in-aid program, the total income received by the inhabitants of each State might be divided by the total number of aged individuals in the State rather than by the total population. These income-per-aged quotients might then be substituted for the income-per-capita figures as the basis on which the schedule of Federal percentages is computed. Similarly, if a program involves expenditures on behalf of *all* children, the formulas might be so modified as to relate the percentages to the income-per-child in each State.

Measurement of Differences in Need

When, however, the scope of a Federal grant program is limited to "needy" persons of certain ages or of other defined characteristics, no census or similar count of the number of needy eligible persons is readily available. One method of obtaining such a count would be to take a special census in each State. This would necessitate, in the first place, common agreement on and application of a uniform and workable definition of "need," with definite standards with respect to the treatment of relatives' responsibility, other income, property, and so forth. It would then

¹⁷ See Wueller, P. H., "Income and the Measurement of the Relative Capacities of the States," *Studies in Income and Wealth*, National Bureau of Economic Research, 1939, Vol. III, p. 446 ff.

be necessary to examine the circumstances of all persons in each State in the general category concerned, to determine whether or not they were "needy" within the definition established. Such a census would have to be taken regularly, since cyclical fluctuations change the percentages of persons in need. In view of the scope and difficulties of such an undertaking, it is questionable whether it can be regarded as practical.

If it were accurate to assume that the proportion of "needy" to total persons in a given category is approximately the same in each State, an allowance in the formula for State differences in the total number of persons in the category would give adequate recognition to differences in the number of "needy" persons as well. The factual data throwing light on the validity of such an assumption are limited. The National Resources Committee found that 23 percent of the families in the Southern region in 1935-36 had incomes below \$500, while the corresponding percentages for the other regions were as follows: New England, 7.1; North Central, 10.1; Pacific, 9.3; and Mountain and Plains, 17.5.¹⁸ For families with incomes below \$750, the percentage for the Southern region was 41.3, while those for the other regions were: New England, 18.4; Pacific, 18.5; North Central, 20.2; and Mountain and Plains, 33.0.

Since need presumably results from a deficiency in income, these figures suggest that the proportion of needy to total families varies widely from one part of the country to another. No published State or regional income distributions of this sort are available for particular groups, such as the aged, children, or the sick. It is probable, however, that the regional differences in family income levels are reflected, at least in part, in differences among the States with respect to the economic status of persons in the special categories. If so, it does not appear valid to assume that the proportion of needy to total persons in a specified category is approximately uniform in all States.

In view of these considerations, it is questionable whether State differences in need, under particular welfare programs limited to "needy" persons in a specified category, are measurable with sufficient accuracy to warrant their inclusion as an element in the formulas for determining

¹⁸ National Resources Committee, *Consumer Incomes in the United States* 1938, p. 98.

ratios of participation. As pointed out in the article in the January Bulletin, there is some basis for an assumption that the percentages of "needy" to total persons in most categories may be relatively high in States with small per capita incomes. A mean per capita income in a given State considerably below that of most other States probably reflects—if the shape of its distribution curve is not markedly different from that of other States—the existence of a relatively large number of small incomes in that State. Thus, those States with relatively small per capita incomes, to which would be assigned the higher Federal matching percentages under the variable-grant formulas outlined above, are in general the States in which a relatively larger percentage of the population have incomes so low that they can be characterized as "needy." Hence, the formulas suggested for determining varying ratios of participation do give indirectly some recognition to differences among the States in the proportion of needy persons.

Ratio of Grants to Federal Taxes Paid

A test occasionally proposed for evaluating formulas for distributing Federal grants is to compare the proportion of total grants received by each State with the proportion of total Federal taxes paid. In such a comparison, figures for internal revenue collection districts, published by the Bureau of Internal Revenue, are sometimes used as an indication of the amount of Federal taxes paid by the inhabitants of a State. The Bureau of Internal Revenue, however, credits tax receipts to the States in which the collections are made. Its published figures, therefore, do not indicate the actual burden of Federal taxes on the inhabitants of different States, since the taxes may eventually be borne by persons in States other than that in which they are collected.¹⁹

North Carolina, for example, ranked below only New York, Pennsylvania, and Illinois with respect to the amount of Federal internal revenue taxes collected in the fiscal year 1938-39 in the State. This situation resulted from the fact that nearly 50 percent of all collections under the Federal cigarette tax were paid initially by tobacco companies in that State. The ultimate incidence of the 6-cent Federal cigarette tax, however, is diffused among consumers throughout the country.

¹⁹ See *Annual Report of the Commissioner of Internal Revenue for the Fiscal Year Ended June 30, 1939*, p. 91, table 3, footnote 2.

This is one of the more striking illustrations of reasons why the Bureau of Internal Revenue figures do not constitute an adequate basis for State comparisons of Federal taxes paid and grants received. Until satisfactory estimates of the amount of Federal taxes actually borne by the inhabitants of each State are available, it is impossible to compare the proportion of grants received under a variable-grant formula, or under any other formula, with Federal taxes paid.

Whether the distribution of Federal grants-in-aid should bear some direct relationship to the Federal tax burden of the inhabitants of each State—assuming that adequate measures of that burden were available—is a matter of broad policy. Involved in such a question are numerous general problems concerning Federal-State relationships both in the fiscal field and elsewhere. Among the factors which should be taken into account in formulating policy with respect to this question is the fact that even the Federal income taxes collected in the different States are based upon income which, to a certain extent, has been derived from commerce with other States. The business enterprises in a given State, from which its inhabitants derive their income, may be dependent on other States, not only for a part of their raw materials and labor but also to a considerable extent for their markets and finally their profits.

This article has analyzed the important characteristics necessary in Federal grant-in-aid formulas, in order to relate the distribution of grants among the States to differences in their economic capacity, as measured by their per capita incomes. Points have been indicated at which selection among various alternatives is a matter of broad policy. These include such questions as the mid-point around which the percentages of Federal participation should be distributed, the magnitude of the range between the maximum and minimum Federal percentages which should be permitted, and the relative desirability of assigning the same or dissimilar percentages of Federal participation to a single State for different grant-in-aid programs. Finally, given the framework established by broad policy considerations, several workable formulas have been indicated, by which the varying Federal ratios of participation for different States can be related directly to their per capita incomes.