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ABSTRACT

The purpose of the Title I program of the Elementary and Secondary Education Act is to provide for the special educational needs of educationally disadvantaged children. This paper discusses one of the key fiscal issues in the reform of Title I -- the design of the distribution formula. The paper focuses on the specification of the grant. The existing program is outlined, ways in which the definition of "disadvantaged" is of critical importance to the functioning of the program are discussed, and adoption of the Social Security Administration's poverty line is proposed. The existing and proposed improvements in calculating the level of compensatory expenditure per eligible child allocatable to each State are discussed. It is suggested that State payments be adjusted to reflect teacher costs. The grant specification section considers the advantages of a matching program as well as the incentive structure of the present program. Finally, an alternative proposal is evaluated. (Author/MLF)

REFORMING THE TITLE I DISTRIBUTION FORMULA

Gail Wilensky

The purpose of the Title I program of the Elementary and Secondary Education Act is to provide for the special educational needs of educationally disadvantaged children. While few deny the need for Title I, several provisions of the program have come under increasing Congressional criticism. The subject of this paper is one of the key fiscal issues in the reform of Title I--the design of the distribution formula. We will focus on the following areas: the target population; the target level of expenditures; and the specification of the grant.

Present Program

There are three parts to the present program: a basic grant, a special incentives grant, and a special grant for areas with high concentrations of low income children.

Payments for the basic grant depend on the number of "disadvantaged children" and on the State's per pupil expenditure on education. For purposes of the grant, disadvantaged children are defined as children from families with an annual income of less than $2,000. or from families receiving more than $2,000. if AFDC recipients.[1/] Neglected and institutionalized children are also considered disadvantaged. The amount

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1/ The income limit actually was $2,000. only for fiscal years 1966 and 1967. It was $3,000. for fiscal years 1968, 1969, and 1970. As of fiscal 1973, it will be $4,000. However the limit effectively remains at $2,000. since the appropriations are insufficient to fund a higher limit.

of money which each county receives equal to the number of disadvantaged children times one-half the State's per pupil expenditure or the national average of per pupil expenditures, whichever is higher. Whenever the funds appropriated are insufficient to cover all eligible children, each county's payments are reduced proportionally. Thus far, Title I payments have always been reduced in this manner.

Payments for the special incentives grant depends on each state's effort index relative to the national index. Effort here is defined as the ration of state and local (that is, non-federal) educational expenditures in each state relative to the state's income. Payments to each state are equal to $1.00 times each .01% that the state's effort index is greater than the national index times the number of disadvantaged children in the state. No single state can receive more than 15% of the amount available for this grant and no funds can be made available for this grant until the appropriations for the basic grant exceed $1.4 billion.

A special high concentration grant is available to districts where the disadvantaged children represent at least 20% of the school age population and also to districts having at least 5,000 disadvantaged children, provided that the 5,000 represents at least 5% of the school age children in the district. There are several restrictions regarding this grant. First, after fiscal 1970, no local school district can receive more than 40% of its basic grant from the concentration grant. Second, the sum spent on the concentration grant cannot be more than 15% of the amount it would take to have complete funding of the basic grant, the special incentives grant, and the high concentration grant less $1.4 billion.

Thus far, limited funding of Title I has meant that only the basic grant has been in effect, and even that at a pro-rated level. It is expected that the "add on" programs will begin to take effect after fiscal 1971 although expenditures for these programs are expected to be very minor for the next few years.

Target Population

Title I is to help meet the needs of the educational disadvantaged. The way we define "disadvantaged" obviously is of critical importance to the functioning of the program.

Disadvantaged is presently defined on the basis of low income, that is, families with under $2,000. or those who would have been low income if it were not for welfare payments, that is, families with at least $2,000. of AFCE payments. Congress, however, has made it clear that the target groups is the educational under-achievers rather than low income children per se. Unfortunately it is not possible to use a direct measure of the educationally disadvantaged because there are no uniform statistics on educational achievement currently available. Because of the unavailability of uniform performance measures and the close correlation between education and income, low income is used as a proxy for the educationally deprived. Although it should be obvious that not all poor children are educationally deprived nor are all educationally deprived children poor, poverty is probably not a bad proxy.[2/]

[2/] Coleman, for example, found that the students socioeconomic background and particularly the parent's education, was significantly related to achievement, especially at the lower levels. J.S. Coleman et. al. (1966) Equality of Educational Opportunity, Washington, D. C.: Government Printing Office, Page 300. There is considerable evidence that education as correlated with future income. See, for example, G. Becker and B. Chiswick (1966) "Education and the Distribution of Earnings," American Economic Review, Papers and Proceedings, LVI (May), 358-69. This means that if parent's education is correlated to student achievement and the parent's income is related to their own education, then family income is correlated with achievement.

The first major issue therefore is how should we define poverty or low income income for purpose of Title I. The definition is important not only because it determines the number of disadvantaged, which in turn influences the distribution of money to the county by the Federal Government, but also because whatever criterion is established for Federal purposes tends to serve as a precedent for local use. Some local administrators are likely to distribute funds within a school district on whatever basis is used by the Federal Government, even those that may have access to achievement data. It seems clear that the present definition of low income as a family with less than $2,000. of income or at least $2,000. from AFDC is extremely arbitrary. The use of a flat $2,000. limit ignores the influence which family sizes, age of the family members, region of the country, and so forth have on economic well-being. A family of three living on a farm in Nebraska with $2,000. of income is not in the same economic position as a family of six living in New York City with $2,000 of income.

Designating a family as a low income family because it receives more than $2,000. of AFDC also makes little sense. One reason for this provision was that the $2,000. limit was clearly too low, particularly for some of the high cost areas in the north. In fact, except for North Carolina none of the states in the deep south have any students counted under AFDC. Adjustments for cost variations are valid, but proxies can be found which are much better t AFDC.

A second and more sound rationale is that the Federal government should not penalize those states which have set relatively "generous" AFDC standards.

Thus, families should be eligible which would have had income below $2,000, except for AFDC payments. For example, if a state's AFDC standard is $2,200 and a family received $300 of AFDC, the family must have had $1,900 of its own resources and without the $300 of AFDC would have been below $2,000. The proper procedure to prevent penalizing such states would be to base eligibility on a non-AFDC income. Counting families which receive over $2,000 in welfare is not the current solution. It particularly discriminates against the relatively low welfare states, where families with less than $2,000 on non-AFDC income are not counted because their AFDC payments are below $2,000.

To implement the correct solution welfare departments must estimate total family income, but they generally do not keep records of total family income and this has been used as a third justification for the $2,000 AFDC requirements. Given AFDC payments, however, it is possible to work backwards to calculate an income estimate. In the previous example, knowing the AFDC payments and the states AFDC standard, the income level provided for a family with no income--it was possible to estimate the family's before AFDC income of $1,900.

Computations are slightly more complicated under the Work Incentives Program (WIN) which was introduced for AFDC recipients shortly after Title I began. Rather than losing $1 of welfare for every $1 earned, the first $30 of earnings a month plus 1/3 of the remainder is disregarded in calculating a family's income. For a family whose non-AFDC income is mostly earnings, the minimum AFDC to be classified as low income should be the state' standard minus $1,099. One thousand ninety-nine dollars is the countable portion of $2,000 of earnings, i.e., $2,000 - $360 - 1/3 of remainder. If the family's non-AFDC income is not earned, the criterion is the same as above.

Reforms

The most ambitious reform would be to define the disadvantaged in terms of their educational attainment. While it should be possible to devise tests which measure educational disadvantagement at least as well as low income does, it is likely to be at least several years before the results would be both generally accepted and available on a national basis. In the interim, we can use a much rational definition of low income than the one now in use.

The official "poverty line" as defined by the Social Security Administration (SSA) is the most logical alternative.[3/] The SSA index is based on the cost per day per family member of an "economy" food plan designed by the Department of Agriculture to be "nutritionally sound." For families of three or more, the poverty line is equal to three times the cost of the economy food plan. The poverty line is somewhat more than three times the food plan for smaller families. This represents the average food-cost to family income relationship reported by the Department of Agriculture on the basis of a 1955 survey. The index also reflects the difference in the cost of living between farm and non-farm families and the differences in consumption requirements for families with different compositions of family members. Poverty lines have been set for 124 types of families each of which depends on the number of children under 18, the number of other persons present, the age and sex of the head and whether or not the family lives on a farm. The published tables provide summaries of the average poverty lines for families of varying sizes.

3/ The Social Security Administration's measures of poverty are described in detail in Molly Orshansky, "Counting the Poor: Another Look at the Poverty Profile," Social Security Bulletin, January 1965, 5-11 and "Who's Who Among the Poor: A Demographic View of Poverty," Social Security Bulletin, July 1965, 3-10.

The Social Security Administration's poverty line has been subject to some criticism. First, it ignores assets. However, little can be done to include assets. Even the data from the decennial census is inadequate for this purpose. Second, it does not reflect regional differences in the cost of living. The problem here is that the cost of living data is only available for selected cities or metropolitan areas and there may be as much within state variation as there is between state variation. Fortunately, the Bureau of Labor Statistics claims that differences in the cost of living at the poverty line are insignificant. Third, the poverty line is very sparse. The poverty line have been adjusted only for price changes since they were initially established in 1963. Also, the food plan, which is the basis for the poverty line, was designed only for emergency use. This ciriticism can be remedied easily by using the "low income line," which is 1.33 times the poverty line as the official poverty line if desired. Finally, the poverty line is said to concentrate too heavily on the food-income relationship. This is probably the most serious criticism, particularly for the urban poor who frequently face relatively inflexible housing costs. The possibility of using more than one relationship needs to be explored further.

The use of the poverty line has several important advantages over the present definition. The major advantage is that it does allow for the effects of differences in familiy size and composition on economic well-being. It is also not as unreasonably low as the current level as $2,000. nor as arbitrary as requiring a minimum of $2,000 of AFDC. Third, the Bureau of the Budget has designated the SSA index as the basis for all official poverty statistics. The index is therefore becoming a familiar and accepted measure both in and out of Washington. Finally, the poverty

line will be as easy to use as the present definition of $2,000. As soon as the magnetic tapes from the 1970 Census are made operational, estimates of the number of school children from families who are below the poverty line will be easily obtainable. Furthermore, these counts will be obtainable by school district rather only by county as is presently the case.[4/] This means that a direct count of disadvantaged will be available rather than leaving the sub-allocation (i.e., the allocation below the county level) as much to the discretion of the state as it has been in the past.

Despite some limitations, the SSA poverty line still represents the best measure of the educationally disadvantaged currently available. It is far better than the current definition. Whether or not an attempt should be made to count children from families who would have been below the poverty line in the absence of AFDC is debatable. While there is no indication that the source of income is related to educational attainment, some arguments can be made for not penalizing states which provide higher levels of AFDC. On balance, these children probably should be counted. Families who would have been below the poverty line if not for AFDC can be identified by means of the procedure described above. The one problem that does remain is how the data should be updated between the decennial censuses. There is no complete answer to this problem. Clearly any district which can demonstrate an increase in the number of poor families it houses should be able to receive payments from the Federal Government for them. This is not permitted under present law although some updating

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[4/] Although the contract is not yet official, we were told by Mr. Turner of the Census that the census plans to calculate demographic data on a school district basis. We have not as yet heard of plans to make a poverty count by school district but it could be done at the same time other tabulations were being made at minimal additional costs.

does occur because of the AFDC part of the definition albeit in an arbitrary and haphazard way.

Target Level of Expenditures

The target level of compensatory expenditures per eligible child should be selected so as to achieve, on the average, some specified level of program performance. To do this requires knowledge of both educational production relations and of local cost conditions. Although detailed information regarding production relations is not available, theoretical considerations combined with currently available empirical data should be sufficient to approximate our goal.

Full entitlements are presently calculated at a per pupil rate of one-half the greater of average educational expenditures in the state or nation. Since per pupil educational expenditures vary among states, this is the component which determines the relative per pupil amount which each state receives. The parameter one-half is constant and therefore influences total entitlements but not their relative distribution.

Cost Considerations

Per pupil expenditures vary substantially among states, ranging in 1967 from $1,140. in New York to $432 in Alabama. The primary justification for using an expenditure measure is that it supposedly measures differences in cost. While this is in part true, expenditure variations also reflect differences in real service levels. Since expenditures and education are positively related to the community's income, the use of a pure expenditure measure inadvertently rewards the wealthiest and probably the state's with the highest quality of education. Perhaps it was in recognition of this problem that Congress introduced the national average as a floor. This represents an unnecessarily crude approach.

One alternative would be to adjust for cost differences according to differences in the Consumers Price Index. The problem here is that separate cost estimates are not available for most localities and a statewide average based on a single city or metropolitan area would have to be used.[5/] Unfortunately some with state variations may be as great or greater than between state variations. Furthermore, the index represents the cost of obtaining a representative market basket of goods rather than being a direct measure of educational cost variations.

A better approach would be to adjust payments to reflect teacher costs. Teacher's salaries account for over three-fourths of total current costs and thus differences in real instructional costs would serve as a good proxy for total cost variations. To correct for differences in service level, salary schedules should be used rather than instructional expenditures per se. Total instructional expenditures reflect both average salaries and pupil-teacher ratios. Since variations in pupil-teacher ratios reflect variations in quality rather than cost, teachers salaries are a better measure of cost differentials.

Differences in salaries are not only due to variations in real costs. Districts often pay higher salaries to hire more qualified teachers. To the extent that differences in salaries reflect differences in quality these differences should be ignored. One way to partially

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5/ Consumer Prices data are collected for 56 areas, covering 39 standard metropolitan statistical areas and 17 nonmetropolitan urban places. Although this covers most of the large population centers, there are nationally 233 SMSA's.

correct for quality differences would be to base cost adjustments on starting salary rates for new teachers with a bachelor's degree.[6/] To take account of within-state differentials, the cost adjustment should depend on the starting salary at the district level rather than the state average.

The differences in rank ordering when using expenditures, average teacher's salaries and starting teacher's salaries for one particular state is shown in Table 1, Baltimore City, for example is tenth in terms of per pupil expenditure, second in terms of average teacher's salary and first in terms of starting salary. Although average starting salaries on a district basis are not currently available, there is no reason this information couldn't be made available.

6/ An alternate would be to derive an index based on the entire salary schedule covering all degrees and levels of experience. The problem is that it would require greater data and the calculation of index weights. Since salaries at different levels also tend to be related, new teacher costs should yield similar results to a weighted index.

TABLE 1

EDUCATIONAL EXPENDITURES, MARYLAND FISCAL 1969

	AVERAGE EXPENDITURE PER PUPIL ($)	RANK	AVERAGE TEACHER'S SALARY ($)	RANK	TEACHER'S STARTING SALARY ($)	RANK
STATE AVERAGE	843		8646			
Alleghany	743	16	8635	4	6210	20
Ann Arundel	744	15	7851	12	6600	10-12
Baltimore City	810	8	8801	2	7000	1
Baltimore County	877	2	8570	6	6800	3-7
Calvert	732	19	7994	11	6700	8-9
Caroline	750	14	7579	17	5950	22
Carroll	676	23	7321	21	6500	13-15
Cecil	805	10	7730	15	6800	3-7
Charles	867	4	7811	13	6700	8-9
Dorchester	722	20	8086	10	6100	21
Frederick	840	6	7553	19	6500	13-15
Garrett	699	21	7576	18	5900	23
Harford	743	17	8115	9	6800	3-7
Howard	846	5	8585	5	6800	3-7
Kent	820	7	6851	24	6600	10-12
Montgomery	1005	1	10134	1	6900	2
Prince George's	874	3	8562	7	6800	3-7
Queen Anne's	789	12	6861	23	6360	16
St. Mary's	778	13	7485	20	6500	13-15
Somerset	662	24	7774	14	5750	24
Talbot	798	11	7629	16	6250	19
Washington	810	9	8749	3	6600	10-12
Wicomico	699	22	8142	8	6300	17-18
Worchester	734	18	7166	22	6300	17-18

Target Level

The salary schedule can be used to adjust for cost differentials. The more difficult task is to estimate the amount needed, on the average, to achieve some specified level of performance. Unfortunately, the relationship between dollar expenditures and achievement is not very well understood although a general relationship does appear to exist.

The more successful programs have tended to average $300 or more per popul. In addition, California and Connecticut--two of the states which have experienced the greatest program success--are advocating minimum compensatory expenditures of $300 per pupil. Three hundred dollars per pupil therefore seems to be a reasonable objective under full authorization. The $300, however, tended to be advocated in the high expenditure states. Average salary of instructional staff in the nation for fiscal year 1969 was $8,200., while in California it was $9,700. and in Connecticut it was $8,800. Weighting these two states according to their number of personnel gives an average of $9,500, or about 85% of the national figure. Thus, on a national basis a more reasonable recommended payment rate might be $255, which is 85% of the $300 estimated minimum.

The $255 figure is subject to several criticisms. First, the figure is fixed, with no built-in adjustments for cost increases. This could easily be resolved by introducing a factor which adjusts for annual changes in teacher salaries, or less preferably in total current per pupil expenditures.

A more fundamental criticism, however, is that we do not have a sufficiently fine fix on the expenditure-achievement relationship. There are high expenditure programs which show no measurable gains and low expenditure programs which result in substantial gains. We need to know more specifically what types of programs are effective and how much they cost. We also need to consider the interaction between the quality of regular school programs and the success of a particular level of compensatory education. A level of compensatory services which is effective in California and Connecticut may be ineffective in some of the poorer southern communities which provide a lower quality of regular educational services.

Our objective is to set out an approach to the problem and to qualify our goal, given the present state of knowledge. A report to Congress on the allocation formula is not due until 1972. We think that the foregoing analysis provides a starting point for further work on the cost-achievement relationship.

Grant Specification

Thus far we have considered ways of estimating the target population and the target levels of expenditures. Under the present nonmatching program, the local agency would receive this allotment under full appropriations without having to contribute any of its own funds. There are, however, several advantages to be gained from introducing a matching program. In this section we consider both the advantages and disadvantages of a matching program and the incentive structure of the present program. Finally, an alternative proposal is evaluated.

The Need for Matching

If properly instituted, the effect of a matching grant program would be to increase total expenditures on compensatory education by increasing state and local expenditures in these areas. While incentives of course, be used to encourage other types of activity such as proper planning or gains on achievement, our concern is with the way a matching program encourages state and local expenditures. Before proceeding, we need to consider two assumptions already implicit in this discussion: expenditures on compensatory education should be increased and nonfederal units should partly finance compensatory education.

If we rely on achievement scores, it is not clear that greater compensatory expenditures are justified.[7/] But insufficient expenditures may have been the cause of poor program performance. In particular, it is known that Title I funds are spread over too many people to even have the potential of making a difference. Average expenditures in the reading programs, for example, have been $68 per pupil. Concentration of existing Federal funds would be politically difficult, however, since it would reduce or eliminate aid to many recipient schools and would eliminate between 25 and 50 percent of the present participants. A matching program will mean more total expenditures, reducing the number of participants which would have to be eliminated. Increased resources would also be coming at a time when there are prospects for substantial changes within education as indicated by the interest in and experimentation with performance contracting. Survey results indicate that funds have been insufficient to provide any compensatory services to nearly half of the

7/ One major study of Title I participants, for example, showed that about 18 percent of the students achieved at greater than expected rates, 13 percent at below expected rates, and about 60 percent exhibited about average expected gains. Other studies reached similar conclusions.

most seriously disadvantaged pupils.

Even if it is agreed that there is a need for additional resources it does not follow that nonfederal agencies should share in the financing of those expenditures. The major justification of requesting nonfederal agencies to share in the costs is that they share in the benefits and the benefits are not evenly distributed among communities. While the major benefits go directly to the individual participant, secondary benefits go to the community in the form of reduced crime rates, lower welfare and police cost, an upgrading of the citizenry and so forth. Because of the problems involved in quantifying the direct and indirect benefits of education, it is difficult to say precisely what share should be borne by each level of government. However, the fact that most of the benefits go to the individuals for what can generally be redistributive purposes suggests that the Federal Government's share should be substantial. The role of the Federal Government is accentuated because of the possibility of future migration by the recipient.

Aside from increasing total expenditures, there are two other advantages to a matching program. First, it allows for a better adjustment to local needs. Federal formulas need to be administratively simple and cannot adequately account for local variations.

Secondly, it encourages areas which institute their own compensatory programs and at least within limits, it discourages areas which use Federal funds to substitute for compensatory programs they would have undertaken in the absence of a Federal program. Under the present formula, school districts or states which institute their own program are not treated any differently than areas which engage in partial or complete substitution. Federal payments under all three parts of the current

program--the basic grant, the special incentives grant, and the high concentration grant depends either on national or statewide spending rather than local spending. This means that there is no incentive for a district to spend its own funds since its own action will only have a minor influence on a statewide average. Furthermore, the Federal payments are based on total educational expenditures in the state rather than just expenditures for compensatory education.

The major argument against matching is that only rich districts take advantage of the programs. This problem can be minimized by the use of a variable matching ration whereby the Federal share is adjusted for variations in the fiscal capacity of the district. As indicated in a later section, most of the HEW matching programs are fully matched and poorer states are generally satisfactory.

An Alternative Matching Program

In selecting matching rations, it is reasonable to try and maximize nonfederal contributions given approximate Federal appropriations, while at the same time taking account of variations in local wealth and potential political constraints.

First, let us assume we wanted to maximize nonfederal contributions irrespective of equity considerations. To do this we need to consider the likely response of nonfederal agencies to different matching ratios, defined as the percent at which the Federal Government matches. Local responses are expected to vary as the matching rate varies. First, when the nonfederal share is small, all the appropriated funds are likely to be matched at existing spending levels. But as long as all available funds are being matched it is possible to reduce the Federal matching percent, in turn

increasing the nonfederal matching percent is further reduced, a point will be reached where the offer of Federal funds will not have enough appeal to induce full utilization of all available funds. Even at this point further reductions in the Federal matching percent still increase total compensatory spending since additional nonfederal funds can more than offset reductions in the amount matched. Eventually the Federal matching percent will be so low that further reductions will only reduce total spending. This would be the point at which the matching percent maximized total program funds.

The problem with attempting only to maximize total expenditures is that a disproportionate share of the money is likely to go to the wealthier districts. We therefore want to include the constraint that total spending in each district must be in the same proportion to the target level of expenditures. Within this constraint we wish to maximize total spending.

The major difficulty with trying to maximize spending subject to the proportionality constraint is that we do not know the exact shape of the curves just discussed. In practice, we will want to deliberatly set the required local percentage at a rate which is less than the rate which would maximize total spending. The reason is that we want districts to fully participate and if we attempt to set the matching rate at the outer limit, we are too likely to overshoot this rate.

Given that our knowledge of the responsiveness of communities to varying Federal percentages is less than perfect and that we want to understate the local percentate, there is some available information which we can make use of in establishing a distributional formula. First, it has been argued above that the Federal share should be substantial in all cases. In addition, a low matching percentage is politically unrealistic. This

might have been possible when the program was first introduced but not be after five years of having been as a block grant.

Second, the Federal matching rate should be variable and it should be conversely related to the community's fiscal capacity. We know that expenditures on education are positively related to the community's wealth. It seems reasonable that in order to reach some specified proportion of the target level that we will have to offer poorer communities a greater inducement (i.e., a higher Federal percentage) than we will for wealthier communities. The variable rate is necessary if we are to keep the program relatively efficient. If we were to use a single rate we would want it to be low enough to allow the poorest or almost poorest district to participate. This would mean that the rate would be lower than necessary for all other districts.

These considerations lead us to recommend a Federal matching ratio which averages about 75%. In addition to achieving a substantial Federal share at 75 percent, past experience indicates that available funds will be fully matched. (See table 2.) Of the two obvious ways to define fiscal capacity for use in determining the rate--local median family personal income relative to national average income or the local percent of children eligible for Title I relative to the national average--we prefer median income. This information is more difficult to get but it could be obtained from Census data. We need upper and lower limits on the matching percentages to prevent it from becoming too low to encourage participation or too high to increase spending. The usual range in other HEW programs is plus or minus 15% (See Table 2) In this present case this would mean that the Federal matching percentage would vary from 60 to 90 percent. Taken together,

this implies the following Federal matching scheme:

$$m=.75 - 1/3 \left(\frac{Y_i}{\bar{y}} - 1\right)$$

where Y_i is average family income in the i^{th} school district and $\bar{y}$ is the average for the country. The one-third coefficient means that all districts with a median income of plus or minus fifty percent of national income will fall within the 60 to 90 percent limits. This should include most communities.

There are at least two decisions which need to be made before this type of program could be implemented. One is whether matching should be permitted at both the state and local levels. State financing is somewhat more equitable since its tax base extends over a wider range of communities. On the other hand, from the Federal viewpoint matching primarily serves to encourage and reward governmental units which institute or expand their own program and it is errelevant which level assumes this responsibility. A second decision is whether to permit these areas which already have their own compensatory programs to count these funds for matching or whether to count only additional funds. Although permitting additional spending would increase the flow of compensatory dollars, it would do so by penalizing the most conscientious communities. Furthermore, only a few areas have such programs. It may, therefore, be advisable in both cases to permit all compensatory spending to be counted for matching.

An issue which warrants further discussion is whether the use of a variable matching rate will place inequitable burdens in the poorer communities. We think it will not. First, the local contribution for poor areas will be small. Suppose that the average matching rate for Mississippi, the poorest state is 85 percent. Given its current annual allotment of about $42 million,

Mississippi would be required to finance about $8 million out of its own funds. With an estimated state population of 2.3 million, this implies an additional per capita burden of about 4 dollars or one-fifth of one percent of the state per capita income of $2,000. In addition, the requirement of nonfederal funds would force the state to redistribute a part of its own resources from its wealthier members to its poorer ones, since the recipients are the educationally disadvantaged. Admittedly this may understate the problem since the disadvantaged may not be evenly distributed across the state and the state government may not contribute to the nonfederal share.

Second, a variable matching program would increase the poorer districts share of Federal funds. Entitlements are based on a district's need for compensatory educational services. The extent to which this need is fulfilled is a function of total compensatory spending, regardless of the method of financing. Thus, calculations of full-entitlements or pro-ratings, if required, should be based on total Federal plus nonfederal spending, not just Federal funds. If, for example, cost considerations required a payment per eligible pupil in Connecticut of $335 under full-authorizations, then this payment should be the sum of both the nonfederal and Federal contribution. But under a variable matching program, the wealthier states such as Connecticut, would receive a lower Federal percentage and thus the share of Title I appropriations to the poorer states would in fact be larger under a well-designed matching formula than under the current nonmatching method.

Reviewing the experience of other HEW programs is instructive. A summary of other major HEW grants is shown in Table 2. HEW grants have been

classified as uniform matching, variable matching and nonmatching. Matching formulas range from 33 percent to 90 percent. In general, education programs other than for higher education construction, are nonmatching or have a high Federal share.

Previous experiences with matching have been most encouraging, as shown in the last five columns of the Table. The only programs in which the majority of states did not fully participate were the construction of community mental health centers, the construction of facilities for the mentally retarded, and the two vocational rehabilitation programs. None of these programs are in the educational area and they tend to be less popular than education measures. The vocational rehabilitation program, however, did not have a high matching ratio and the explanation of the poor response is not clear. Aside from this one exception, past experience indicates that a Title I with a relatively high average Federal percentage, such as 75 percent, is likely to be fully matched.

TABLE 2

PERCENT OF AVAILABLE FUNDS MATCHED UNDER HEW ADMINISTERED PROGRAMS[1/]

	FEDERAL MATCHING PERCENT (%)	APPROPRIATIONS (1967) ($M)	NUMBER OF STATES NOT MAKING FULL USE OF ALLOTMENTS BY PERCENT OF AVAILABILITY MATCHED, 1966				
			0-24	25-49	50-74	75-99	Total
UNIFORM MATCHING							
Higher Education Facilities		354 0					
Other Undergraduate Institutions	33 1/3		0	0	0	0	0
Community College & Technical Institutions	40		0	0	0	0	0
Services for Cripple Children (Fund A)	50	25.0	1	0	1	3	5
Maternal & Child Health Funds	50	25.0	0	1	0	5	6
Strengthening Instruction in Science, et al	50		0	0	0	0	0
Strengthening Instruction in Humanities	50		0	0	0	0	0
Improvement in Undergraduate Instruction		14.5	2	1	1	0	4
TV Equipment & Other Equipment	50		1	0	1	5	7
Guidance, Counseling and Testing	50	24.5	0	0	0	0	0
Vocational Education	50	273.4	0	0	0	0	0
Community Services & Continuing Education	50	10.0	4	0	1	2	7
Aging-Community Planning		6.0	NA	NA	NA	NA	NA
1st Year	75						
2nd Year	60						
3rd Year	50						
Basic Support for Vocational Rehabilitation	75	236.0	0	0	3	30	33
College Work-Study Program	75	134.0	0	0	0	0	0
Mental Retardation: Program Implementation	75	2.8	3	0	0	5	8
Innovation in Vocational Rehabilitation		3.0	13	6	0	11	30
1st - 3 Years	90						
Last - 2 Years	75						
Adult Basic Education	90	30.0	0	0	0	0	0
National Defense Student Loan	90	193.1	0	0	0	0	0
National Teacher Corp	90	11.3	NA	NA	NA	NA	NA
Educational Opportunity Grants	7	112.0	0	0	0	0	0

	FEDERAL MATCHING PERCENT (%)	APPROPRIATIONS (1967) ($M)	NUMBER OF STATES NOT MAKING FULL USE OF ALLOTMENTS BY PERCENT OF AVAILABILITY MATCHED				
			0-24	25-49	50-74	75-99	Total
VARIABLE MATCHING							
Community Mental Health Center Construction	33 1/3-66 2/3	50.0	42	9	0	0	51
Mental Retardation Facilities Construction	33 1/3-66 2/3	15.0	27	8	3	3	41
Child Welfare Services	33 1/3-66 2/3	46.0	0	0	0	3	3
Hospital Facilities Construction	33 1/3-66 2/3	270.0	1	3	1	3	8
Comprehensive Public Health Services	33 1/3-66 2/3	62.5	0	0	0	0	0
Library Services and Construction	33 - 66	76.0	0	0	0	0	0
Public Assistance	2/	4,176.0	0	0	0	0	0
NON-MATCHING							
Services for Cripple Children (Fund B)	100	25.0					
Maternal & Child Health Funds	100	25.0					
Educational Improvement for the Handicapped	100	2.4					
ESEA - Titles I, II, III, and IV	100	1,312.4					
Land Grant Colleges	100	14.5					

1/ Data are drawn from tables presented in : Mushkin, S. and Cotton, T., Functional Federalism George Washington University, Washington, D. C. 1968, pp. 56, 58, 67, and 68.

2/ Complicated formula depending on welfare rates and number eligible.

Entitlements Under the Recommended Program

The effect of the proposed reforms on the distribution of funds among states is presented in Table 3. We show the separate effect of each component by introducing it into the present program, keeping the other provisions in their present form. For each element we show the percent of funds and the allotments under a $1.3 billion appropriation, by states. The table understates the full extent of the distributional changes because it neglects the within-state reallocations which frequently may be as significant as the between-reallocations.

The present program is described in columns (1) and (2). The count of children from families with less than $2,000 income is still based on 1960 data and will shortly be revised to reflect the 1970 census. Comparisons will have to be adjusted accordingly.

The poverty count estimated total poor school-age children. These figures were derived from several data sources and must be taken as only rough approximations. In addition, the poverty count is inclusive of AFDC income, while such income would not be counted under our recommendations. This difference does not markedly affect our calculations. In general, most of the poorer states experience gains while states with the highest levels of AFDC, particularly New York, suffer declines as shown in Column 3.

Starting salaries of teachers possessing a B.A. degree were not readily available on a state-wide basis. We used average instructional expenditures per pupil instead. This tended to overstate the share to wealthier states because it did not adequately adjust for differences in accreditation and experience.

Replacing expenditures, currently with a national average floor provivion, by average salaries without a floor decreases the share to poor states. Colmn 5. If the salary index is introduced with a national average minimum, then the share received by the poorer states increases. We do not advise this because the national floor is imprecisely related to costs.

Estimates of variable matching were derived from state personal income figures, Colmn 9. The share to the poorer states increased, since the Federal matching percent was set inverse to income and bacause nonfederal matched funds were subtracted from target spending. Matching ratios were constrained between 60 and 90 percent.

When all the recommended reforms are introduced, Colmn 11, it is seen that the present program tends to underpay the poorer states while excellively aiding the wealthier or high AFDC areas. However, several middle or upper income areas such as Ohio, Michigan, and the District of Columbia would also benefit. Again, we emphasize that the recommended measure probably reallocates to the poorer communities a somewhat larger share than shown because of the bias in the average salary index.

When the costs of all the recommended program elements are summed, the new target level of spending would be about equal to full-entitlements under the present program. There are about 7 1/2 million children under the poverty line while about 6 1/2 million children are currently counted, an increase of about 15 percent. The payment rate per pupil would fall by about 25 percent if a national average of $250 was substituted for the present state or national expenditure figure. Total spending should increase from about one-half to over seventy percent of target spending under the 25 percent nonfederal matching ratio. Finer calculations based on the 1970 census are of course required.

TABLE 5

THE IMPACT OF THE RECOMMENDED DISTRIBUTION FORMULA BY STATE

STATE	PRESENT PROGRAM		POVERTY[1] LINE		INDEX OF INSTRUCTIONAL SALARIES, PER PUPIL[2] WITHOUT NATIONAL FLOOR		INDEX OF INSTRUCTIONAL SALARIES, PER PUPIL[2] FLOOR OF NATIONAL AVERAGE		VARIABLE[3] MATCHING		RECOMMENDED FORMULA	
	% of Total	$1300M	%	$1300M	%	$1300M	%	$1300M	%	$1300M	%	$1300M
Alabama	3.12	40.59	3.32	43.16	2.85	37.05	3.52	45.76	3.45	44.85	3.05	39.65
Alaska	.16	2.02	.13	1.69	.15	1.95	.14	1.82	.14	1.82	.12	1.56
Arizona	.75	9.76	.77	10.01	.74	9.62	.71	9.23	.74	9.62	.81	10.53
Arkansas	1.92	25.00	2.03	26.39	1.80	23.40	2.14	27.82	2.23	28.99	2.04	26.52
California	7.53	97.93	5.51	71.63	9.29	120.77	8.47	110.11	6.72	87.36	6.34	82.42
Colorado	.73	9.43	.75	81.38	.76	11.77	.77	10.01	.70	9.10	.74	9.62
Connecticut	.89	11.56	.67	8.71	.83	10.79	.76	9.88	.78	10.14	.60	7.80
Delaware	.21	2.76	.19	2.47	.19	2.47	.18	2.34	.20	2.55	.18	2.34
District of Columbia	.48	6.26	.56	7.28	.50	6.50	.45	5.85	.46	5.98	.56	7.28
Florida	2.56	33.34	3.32	43.16	2.41	31.33	2.20	28.60	2.68	34.84	4.10	53.30
Georgia	3.09	40.21	3.63	47.19	3.39	44.07	3.48	45.24	3.36	43.68	3.89	50.57
Hawaii	.22	2.91	.28	3.64	.24	3.12	.22	2.86	.20	2.60	.28	3.64
Idaho	.24	3.18	.30	3.90	.20	2.60	.24	3.12	.24	3.12	.26	3.38
Illinois	4.14	53.79	3.84	49.92	4.88	63.44	4.45	57.85	3.75	48.75	4.06	52.78
Indiana	1.33	17.25	1.93	25.09	1.58	20.54	1.44	18.72	1.28	16.64	2.13	27.69
Iowa	1.17	15.21	1.40	18.20	1.42	18.46	1.30	16.90	1.19	15.47	1.61	20.93
Kansas	.82	10.65	1.01	13.13	.78	10.14	.80	10.40	.82	10.66	1.00	13.00
Kentucky	2.80	36.34	2.76	35.88	2.83	36.79	3.14	40.82	3.07	39.91	2.81	36.53
Louisiana	2.67	34.67	3.09	40.17	2.85	37.05	2.96	38.48	2.89	37.57	3.30	42.90
Maine	.31	4.03	.53	6.89	.32	4.16	.33	4.29	.32	4.16	.55	7.15
Maryland	1.41	18.39	1.42	18.46	1.75	22.75	1.60	20.80	1.30	16.90	1.48	19.24
Massachusettes	1.68	21.85	1.57	20.41	1.71	22.23	1.56	20.28	1.56	20.28	1.58	20.54
Michigan	3.29	42.76	3.37	43.81	3.72	48.36	3.39	44.07	3.06	39.78	3.56	46.28
Minnesota	1.56	20.33	1.74	22.62	1.80	23.40	1.64	21.32	1.53	19.89	1.85	24.05
Mississippi	3.26	42.33	2.82	36.66	2.90	37.70	3.67	47.71	3.81	49.53	2.68	34.84
Missouri	2.02	26.31	2.55	33.15	2.07	26.91	2.10	27.30	2.05	26.65	2.62	34.06
Montana	.29	3.73	.32	4.16	.25	3.25	.26	3.38	.29	3.77	.31	4.03
Nebraska	.59	7.64	.74	9.62	.57	7.41	.64	8.32	.61	7.93	.70	9.10
Nevada	.08	1.08	.09	1.17	.09	1.17	.08	1.04	.07	.91	.09	1.17
New Hampshire	.14	1.78	.22	2.86	.13	1.69	.13	1.69	.14	1.82	.21	2.73
New Jersey	2.59	33.64	2.06	26.78	2.20	28.60	2.01	26.13	2.03	29.90	1.74	22.62
New Mexico	.77	10.04	.67	8.71	.72	9.36	.72	9.36	.77	10.01	.70	9.10

THE IMPACT OF THE RECOMMENDED DISTRIBUTION FORMULA BY STATE

STATE	PRESENT PROGRAM		POVERTY[1] LINE		INDEX OF INSTRUCTIONAL SALARIES, PER PUPIL[2] WITHOUT NATIONAL FLOOR		INDEX OF INSTRUCTIONAL SALARIES, PER PUPIL[2] FLOOR OF NATIONAL AVERAGE		VARIABLE[3] MATCHING		RECOMMENDED FORMULA	
	% of Total	$1300M	%	$1300M	$	$1300M	%	$1300M	%	$1300M	%	$1300M
New York	13.86	180.13	9.29	120.77	10.32	134.16	9.34	121.40	12.74	165.62	6.67	86.71
North Carolina	4.47	58.16	4.36	56.68	4.58	59.54	4.87	63.31	4.94	64.22	4.65	60.45
North Dakota	.37	4.85	.41	5.33	.33	4.29	.39	5.07	.39	5.07	.38	4.94
Ohio	3.14	40.77	3.66	47.58	3.69	47.97	3.42	44.46	2.94	38.22	3.79	49.27
Oklahoma	1.46	18.92	1.65	21.45	1.51	19.63	1.65	21.45		20.02	1.63	21.19
Oregon	.65	8.41	.69	8.97	.63	8.19	.57	7.41	.62	8.06	.69	8.97
Pennsylvania	4.39	57.12	4.77	62.01	4.51	58.63	4.15	53.95	4.26	55.38	4.93	64.09
Rhode Island	.34	4.41	.36	4.68	.36	4.68	.33	4.29	.33	4.29	.36	4.68
South Carolina	2.67	34.65	2.54	33.02	2.40	31.20	2.98	38.74	2.98	38.74	2.35	30.55
South Dakota	.48	6.29	.49	6.37	.45	5.85	.55	7.15	.52	6.76	.45	5.85
Tennessee	2.85	37.03	3.33	43.29	2.79	36.27	3.20	41.60	3.15	40.95	3.30	42.90
Texas	5.82	75.60	7.20	93.60	5.28	68.64	5.81	75.53	6.02	78.26	6.96	90.48
Utah	.28	3.66	.34	4.42	.29	3.77	.30	3.90	.27	3.51	.33	4.29
Vermont	.17	2.17	.22	2.86	.14	1.82	.15	1.95	.18	2.34	.20	2.60
Virginia	2.44	31.77	2.80	36.40	2.73	35.49	2.71	35.23	2.51	32.63	2.99	38.87
Washington	.99	12.84	1.02	13.26	1.05	13.65	.96	12.48	.92	11.96	1.08	14.04
West Virginia	1.52	19.71	1.55	20.15	1.61	20.93	1.74	22.62	1.61	20.93	1.62	21.06
Wisconsin	1.35	17.61	1.62	21.06	1.41	18.33	1.29	16.77	1.29	16.77	1.62	21.06
Wyoming	.12	1.55	.13	1.69	.11	1.43	.11	1.43	.12	1.56	.12	1.56

[1]The number of school aged children from families on poverty are approximate estimates calculated by O.E.O.

[2]Data are from The Digest of Education Statistics, Office of Education, 1969, p. 40.

[3]Based on median family personal income by state, Statistical Abstract of the United States, 1969, U. S. Department of Commerce, p. 324.

Incentive and Concentration Provisions

The basic grant part of the program has been our main concern, since it is the only part which has been funded. Appropriation levels should be sufficient to permit the incentive and concentration provisions to take effect, but only at minor levels in the next few years. These "add on" provisions presumably serve to improve upon the basic grant program.

In the special incentive part the effort index is based on state total educational spending relative to state personal income. This can not be justified as an incentive for compensatory spending, since effort depends on total educational expenditures. There is also no reason to believe that those states with above average effort are those which most need additional compensatory spending. This index would be a poor choice even if the objective was to encourage total educational expenditures because a single district can have only a minor effect on the state wide averages which determine the index. The program would be improved if the special incentive part was eliminated and the available funds were applied to the basic grant.

The concentration provision provides extra payments to districts in which there are relatively high percents of poor or large numbers of poor. The disadvantaged in these areas may have special problems because noncompensatory service levels are so low and because of the potentially harmful peer group effect when schools are composed primarily of the disadvantaged. Our target spending measure does not allow for this possibility, although poorer districts match at a lower percent. To estimate the amount of additional payments needed, requires more detailed information about the determinants of educational performance than is currently available.

It is therefore recommended that the special grant for areas of high concentration of low income children be retained in its present form.

Conclusion

Our concern in this paper has been with the target population, the target level of spending and the need for a matching program. The reforms suggested significantly alter the financing and distribution of Title I funds.

Several issues have been neglected, particularly the types of behavior which might be encouraged under an incentive program. Incentive proposals have been limited to the matching of nonfederal funds. They could also serve to encourage desired activities in the ways a program is carried out. One criticism of Title I programs is that funds are spread too thinly to improve pupil performance. Another criticism is that a disproportionally small share of the funds finances programs in the basic skills, percent. Entitlements might be linked to the degree of concentration or to program purposes as a way of improving performance in these areas.

A third approach is to base payments on performance, such as on standardized achievement tests. There are several obvious problems in implementation: teaching for the tests, tests having a cultural bias and not accurately measuring learning, and in establishing a baseline by which to judge performance gain. Yet performance-base payments permit local initiative and discretion, while potentially eliminating the need for many requirements in project implementation. It would be better to wait for the results of the many performance experiments currently being initiated, such as those by OEO, rather than trying to decide their merits on the basis of the few studies available.

Redesigning the formula according to our recommendations would involve

a most thorough reform of the Title I program, nevertheless. Actual implementation would be delayed until the census data was available in 1971, and most probably until after the required Congressional report in 1972. This would allow for new studies, such as on the spending-achievement relation, if necessary. A summary of the recommendations follows:

-- Low income pupils would be defined asthose from families below the poverty line. Only non-AFDC income would be counted to prevent penalizing states with high AFDC standards.

-- The target level of expenditures would be $255 adjusted by a local cost index reflecting initial teacher salaries. There is empirical support for $255, but this should be refined by immediately initiating further research studies.

-- Variable matching would be instituted with the federal government financing 75 cents out of each dollar of total spending, on the average. Local ratios would be based on median family personal income and would be permitted to vary from 60 percent to 90 percent.

-- The special incentive provision for above average effort should be eliminated, because it is unrelated to compensatory spending. The concentration provision should be retained since our reforms may somewhat understate the needs of such areas.

APPENDIX - TABLE IA

BASIC DATA

STATE	POVERTY LINE (%)	TEACHER SALARY INDEX	FEDERAL MATCHING PERCENT $M=.75 - 1/3 (\frac{yi}{y} -1)$
Alabama	3.55	.7378	.851
Alaska	.10	1.328	.653
Arizona	.82	.9535	.755
Arkansas	2.17	.7672	.896
California	5.70	1.183	.687
Colorado	.80	.9055	.743
Connecticut	.60	1.073	.678
Delaware	.18	1.024	.718
District of Columbia	.46	1.214	.730
Florida	3.55	1.049	.805
Georgia	3.88	.878	.836
Hawaii	.29	1.012	.708
Idaho	.32	.758	.774
Illinois	3.75	1.134	.697
Indiana	2.06	1.018	.742
Iowa	1.50	.996	.785
Kansas	1.08	.880	.771
Kentucky	2.95	.823	.845
Louisiana	3.30	.878	.832
Maine	.57	.889	.796
Maryland	1.36	1.120	.712
Massachusettes	1.59	1.018	.714
Michigan	3.14	1.158	.715
Minnesota	1.67	1.072	.755
Mississippi	3.02	.721	.900
Missouri	2.73	.899	.781
Montana	.34	.878	.765
Nebraska	.79	.817	.797
Nevada	.09	1.066	.687
New Hampshire	.23	.887	.751
New Jersey	1.74	1.070	.684
New Mexico	.72	.921	.767
New York	6.01	1.146	.708
North Carolina	4.66	.859	.850
North Dakota	.44	.768	.817
Ohio	3.91	.982	.720
Oklahoma	1.76	.836	.811
Oregon	.68	1.014	.736
Pennsylvania	4.86	.992	.747
Rhode Island	.35	.997	.755
South Carolina	2.72	.735	.858
South Dakota	.52	.756	.833
Tennessee	3.56	.795	.851
Texas	7.70	.829	.796
Utah	.36	.902	.736
Vermont	.23	.817	.795
Virginia	3.00	.921	.791
Washington	1.02	1.080	.717
West Virginia	1.66	.841	.814
Wisconsin	1.58	1.018	.734
Wyoming	.13	.950	.737