

INTERGOVERNMENTAL FISCAL RELATIONS IN IOWA

I. INTRODUCTION

A development of considerable importance during the past several years has been the growth of intergovernmental revenue flows. In 1964, federal transfers to the state government of Iowa amounted to \$130 million, which was about 25 per cent of the state government's total general revenue. Federal transfers to local governments in Iowa were considerably less than this-- \$4.1 million, or .6 per cent of local total general revenue. In the same year, 21 per cent of the local government's revenue consisted of transfers from the state government (\$132 million), and the state government received 5 per cent of its total revenue from local governments (\$25 million).

Intergovernmental revenue flows in the United States and in Iowa are a result of attempts to deal with a number of specific problems confronting state and local governments. These problems and the policies involved in dealing with them are discussed in general terms in Part I of this study. Part II attempts to determine the extent to which these problems exist in Iowa. Part III is an analysis of the pattern of revenue flows in Iowa and whether existing policies deal effectively with the problems discussed in Part I.

II. THE PROBLEMS AND POSSIBLE SOLUTIONS

It is difficult to find an unambiguous discussion of the rationale for the various forms of state assistance to local governments. The discussion of state-local revenue flows is frequently intermingled with problems of federal-state fiscal relations, and while the problems are often the same or similar, this is not always the case. Furthermore, some observers emphasize certain points while they are implied or overlooked by others. In other cases, the reasons cited are repetitive or overlapping. However, a survey of the literature indicates that the reasons which are cited for state assistance to local governments can be reduced, for the most part, to the following:¹

(1) performance levels by local governments in some sphere may be regarded as inadequate; (2) there may be undesirable intra-state variations in tax effort required to provide given levels of public services; (3) the revenue sources available to local governments may be considered inadequate. These points are discussed below.

¹See, for example, J. F. Due, Government Finance (Homewood, Ill.: Richard D. Irwin, Inc., 1963), pp. 435-442; Harold M. Groves, Financing Government, 6th ed. (N. Y.: Holt, Rinehart & Winston, 1964), pp. 526-530; William J. Schultz and C. Lowell Harris, American Public Finance (Englewood Cliffs, N. J.: Prentice-Hall, Inc.), pp. 458-475.

Inadequate Performance Levels

The benefits from many local public goods and services accrue for the most part to local residents. This is the case, for example, with fire protection, sanitation facilities, and parks. If the provision of these services is inadequate it may be considered ill-advised outside the local area, but the effects of the decision are felt largely by that community. Indeed, the decision may be an accurate reflection of the prevailing tastes and preferences of the community. On the other hand, the failure of some communities to provide adequate levels of other public services is not a matter of indifference to the citizens of other communities. There may be a strong feeling, for example, that educational opportunities ought to be reasonably uniform or that welfare programs ought to meet certain minimum standards. In other words, citizens in other communities are affected by some of the collective decisions of citizens in another community.

A community may not be providing what is considered by the state as a whole as an adequate level of public services for essentially two reasons. First, a community may simply be indifferent about, or unaware of, the problem (if it exists). Second, a community may be performing at low levels because some of the benefits derived from the service are not confined to the community but "spill over" to other communities as well. The benefits of education, for example, are widely diffused through migration.

The streets of a locality are used by non-residents who do not necessarily contribute toward their construction and maintenance. Since the extra cost to residents of providing such services exceeds the extra benefits enjoyed by them, there may be a tendency to allocate too few resources to these forms of investment.

Any policy of raising public performance levels requires some means of determining when the performance level in some sphere is satisfactory. This is an exceedingly difficult task. Opinions differ sharply about whether more resources should be allocated to the public sector and which functions, if any, have more merit than others. Some of the problems involved in determining the adequacy of performance levels are discussed below.¹ At this point we simply want to point out that this is a complex problem, and in the discussion below attention is focused on policies aimed at raising performance levels without making a judgment about whether performance levels at the local level in Iowa are indeed satisfactory.

Policies aimed at improving local performance levels typically take three forms: (1) legislating certain standards of performance, (2) transferring certain local functions to the state government, and (3) transferring resources from the state government to local governments. An example of the first approach is the requirement that localities provide certain educational programs or services. Such a policy, particularly if carried too far or applied to certain

¹See pp. 23-41.

areas, is frequently resisted because of the element of compulsion. Furthermore, to meet state-wide standards, localities may choose to finance the higher performance level by reducing expenditures on other, perhaps more essential, functions. On the other hand, if higher performance levels are financed not by a reduction in other expenditures but by an increase in local taxes, there may be an undesirable economic burden placed on the citizens of poorer communities.

Although transferring certain functions from local governments to state governments is another policy which has been advocated as a means of raising performance levels, there is no guarantee that this will be the result. If performance levels are considered low in all localities, it raises the question of why people would vote for an increase in state taxes to enlarge a program but not an increase in local taxes. The answer may be that the state tax structure is more acceptable in terms of equity, administration, cost of collection, etc., or that localities are reluctant to raise local taxes to certain levels because of a fear of repelling industry and residents. On the other hand, if performance levels are satisfactory in a significant majority of localities and unsatisfactory in the remaining localities, the majority could vote to transfer the function to the state and over-all performance levels could be raised. In this case the over-all tax bill of the majority of localities need not be higher since the state taxes to finance the

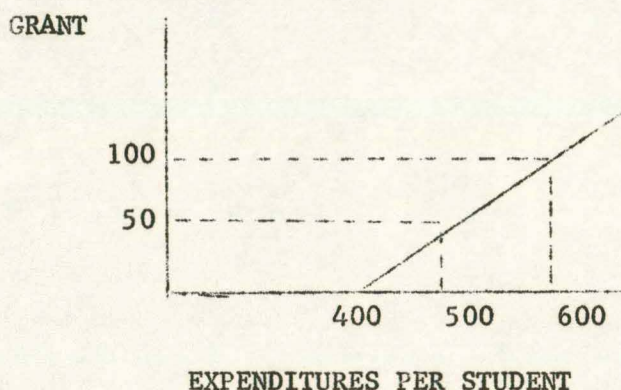
program might simply replace the local taxes which were financing the program. On the other hand, it could be that with a state program the tax base is such that the majority of localities would be partially subsidizing other localities. This could be incentive enough to keep the function at the local level. Another incentive to keep the function at the local level is that a state program places an upper limit on performance levels. That is, some communities might prefer higher levels of performance in some sphere than is possible with a state-wide program. This, plus a general desire for local autonomy, may require a policy of transferring resources to localities rather than transferring local functions to the state government.

One way of trying to provide localities with more resources is a grant-in-aid program. It should be pointed out at the outset, however, that there is no guarantee that local expenditures for some function will be higher with an aid program than without one. There is some empirical evidence that in general total state and local expenditures are higher the higher is state aid.¹ But whether this is true of a particular state is another matter. The preferences of the citizens of a particular state may be such that a certain performance level for some function will be attained regardless of whether there is a state aid program. It is clear,

¹See Seymour Sacks and Robert Harris, "The Determinants of State and Local Expenditures and Intergovernmental Revenue Flows of Funds," The National Tax Journal, Vol. XVII, No. 1 (March, 1964), pp. 75-85.

however, that if a state aid program is to maximize the possibility of raising expenditures in some sphere, the aid must depend on the level of local expenditures.

If, for example, a flat grant is given, local governments have the option of increasing expenditures or reducing local taxes. On the other hand, if the size of the grant depends on the difference between some minimum level of expenditures and whatever expenditures are actually made, communities receive more aid only if they increase expenditures. The diagram below illustrates this point. Suppose that the grant is for education, and before any community can receive aid it must spend \$400 per student. Assume that expenditures above this level will be matched in the amount of 50 per cent by the state. In this example, a school district which spends \$500 per student will receive \$50 per student from the state; an expenditure of \$600 will be matched by \$100 from the state, etc.¹



¹The function need not be linear, of course. The function may be an increasing or decreasing one, and there might be some upper limit.

The effects of this type of program can be explained with an example, which is not wholly realistic but which nevertheless illustrates some of the major problems involved in implementing an aid program. Suppose that there are only three localities A, B, and C, and each locality responds to the aid program by increasing expenditures to the level as shown in column (1), Table 1. Suppose the state finances 50 per cent of the increase in expenditures [column (2)] with total aid of \$300 million and a total tax base (e.g., income, property) of \$6 billion [column (3)], the over-all tax rate must be 5 per cent. Applying this rate to each locality's tax base¹ yields the state tax collections needed from each locality in order to finance the aid program. The difference between state tax collections and aid received by each locality is the net subsidy (plus or minus). In this example, only locality A receives a positive net subsidy [column (5)].

Compared with a completely locally financed program of the same magnitude, the aided program has become less expensive for A, but more expensive for localities B and C. Because the over-all tax rate is higher for B and C with an aid program than without one, B and C may choose to reduce their tax burden by cutting other, perhaps essential, outlays. This is a risk which must clearly be recognized.

¹The tax rate applied to each locality's base need not be proportional as assumed here. It may instead be progressive or regressive.

Table 1

THE EFFECTS OF A HYPOTHETICAL AID PROGRAM

<u>Locality</u>	(1) <u>Increased expenditures (millions)</u>	(2) <u>State aid (millions)</u>	(3) <u>Tax base (millions)</u>	(4) <u>State tax collections (millions)</u>	(5) <u>Subsidy (millions)</u>
A	\$160	\$ 80	\$1,000	\$ 50	\$ 30
B	180	90	2,000	100	-10
C	<u>260</u>	<u>130</u>	<u>3,000</u>	<u>150</u>	<u>-20</u>
Total	\$600	\$300	\$6,000	\$300	\$ 00

In the example above, there has been a redistribution of resources to localities which receive a net subsidy. It is possible, of course, that a redistribution of resources among localities need not occur with this type of aid program. The tax base and tax structure could be such that each locality receives no net subsidy. That is, the aid received by each locality could equal the state taxes paid by each to finance the aid program. In this case, each locality is financing the aid program out of its own resources, and it raises the question of why localities would be unwilling to expand expenditures without an aid program. Like the policy of transferring local functions to the state government, the answer may be that local taxes are more objectionable than state taxes, or that competition among localities keeps taxes and thus performance levels down.

Intra-state Variations In Need and Fiscal Capacity

In order to maintain services at what is generally considered desirable levels, some localities must make a greater tax effort than other localities. This arises because of variations in needs (e.g., school-age population, welfare problems) and fiscal capacity among localities. Communities with relatively high needs and relatively low fiscal capacity may either accept lower standards of performance or make a greater tax effort than other localities. Neither of these alternatives may be acceptable.

The possible solutions to this problem involve transferring certain functions to the state level, or transferring state funds to localities. The merits of the first alternative were discussed above. Some of the problems involved in implementing the second alternative are discussed below.

The following example demonstrates how tax burdens might be equalized to attain a desired performance level. The example is not meant to be entirely realistic; rather, it is aimed at illustrating the major problems met in devising an equalization formula.

Suppose that there are only three localities and the tax base and desired performance levels are quantifiable as shown in Table 2. With a desired performance level of \$480 million for all localities and a total tax base of \$6 billion, the over-all tax rate would be 8 per cent. Applying this rate to the tax base of each locality determines the tax collections from each locality.

The difference between the tax collections and the desired performance level determines the subsidy (plus or minus) to each locality.

Table 2

HYPOTHETICAL EQUALIZATION AID PROGRAM				
<u>Locality</u>	<u>Tax base (millions)</u>	<u>Desired performance level-- expenditures (millions)</u>	<u>State tax collections (millions)</u>	<u>Subsidy</u>
A	\$1,000	\$130	\$ 80	\$ 50
B	2,000	190	160	30
C	<u>3,000</u>	<u>160</u>	<u>240</u>	<u>-80</u>
Total	\$6,000	\$480	\$480	\$ 00

In this example, the tax burden of achieving a given performance level is the same for all localities (8 per cent). It may be desirable, of course, to have a different relationship between the tax base and tax collections. For example, it would be possible to have the rate progressive, rising as the per capita tax base rises.

In this illustration, higher expenditure levels may be made if localities are willing to pay higher taxes. Furthermore, the formula for distributing aid provides localities with no incentive to increase or decrease expenditures. The amount of aid which a locality receives does not depend on the level of expenditures,

but on defined performance levels. However, the change in the distribution of income among localities (in this example from C to A and B) may cause expenditures to be different. This is because the elasticity of public expenditures with respect to income may be different among localities. In other words, locality A, if at all willing, may increase public expenditures with a given increase in income more than B and C reduce public expenditures (if at all) with a reduction in income.

To implement this or similar aid distribution formulae, it is necessary to (1) determine the desired performance level and the cost of achieving the performance level in each locality, (2) define and measure the tax base of each locality, and (3) decide upon the rate structure which is desirable.

With respect to performance costs, the per capita expenditures needed to provide a particular spectrum or bundle of local government services may depend on a number of factors. First, certain elements of the population may require more public expenditures than others. For example, as a locality's school-age population rises relative to its total population, the per capita expenditures needed to achieve a given level of performance in education and other spheres of local government activity will probably increase. As the per cent of the population in old-age and welfare groups increases, a locality may also need to make greater total expenditures per capita if it is to maintain a given level of performance

in all areas. Population structure is therefore a factor that may affect the per capita cost of local government--a factor which should be taken into account in the distribution of aid.

Apart from the effects of population structure, the costs of providing some types of services may be affected by population density (county road systems) or the extent to which the population is concentrated in urban areas (sanitation, police, fire protection). Consequently, incorporation of measures of population density and urbanization into aid formulae may be warranted.

The costs of providing local government services may vary among localities for other reasons--e.g., intrastate differences in the price of resources purchased by local governments. However, since our objective at this point in the discussion is limited to pointing out that there are intrastate differences in the expenditures required to provide a given spectrum of local government services, a discussion of additional sources of expenditure differentials will not be undertaken.

The task of defining target performance levels, tax bases, and the degree of progression properly falls on the legislature. Given these definitions, rough estimates of desired performance levels and the tax base for each locality could be obtained--but only at considerable cost.

However, even if performance levels and the tax base cannot be pinned down to single numbers, several general statements can

be made about aid formulae aimed at equalizing the tax burdens required to achieve a given level of performance.

1. Per capita aid distributions should be inversely related to measures of fiscal capacity such as per capita income and, perhaps, per capita property value.
2. Per capita aid distributions should reflect differences in the cost of the target performance level that grow out of differences in population structure and geographic distribution, prices of goods purchased by local governments, etc.
3. Unconditional block grants and aid formulae that are independent of actual expenditure and tax policies of local governments minimize the possibility that grants will alter decisions about the over-all level of taxes and expenditures and about the composition of expenditures.
4. The redistributive or burden-equalizing effect of this type of formula can obviously be offset in several ways. State governments may leave less to be provided for by local governments in some localities than in others. Thus, the pattern of state expenditures may offset (or reinforce) the equalization effected by grants-in-aid. Similarly, the state tax system may act to reinforce or offset equalization. Hence, a grant program to local governments which tends to equalize tax burdens required for a

particular expenditure level will not guarantee equalization. However, the partial effect of the grant system is to promote equalization.

Inadequate Revenue Sources

The third general reason for state assistance to local governments is the inadequacy of existing revenue sources at the local level. Traditional tax sources may be inadequate or inferior in terms of (1) equity, (2) elasticity, or (3) ease and cost of collection. If property taxes are more inequitable than other taxes, then some forms of assistance to local governments can ameliorate inequities. If property taxes do not respond adequately to the growing cost of providing public services, then state assistance can help to meet growing needs. If local governments have difficulty in administering certain types of taxes, there are various forms of assistance which can reduce the cost or increase the ease of collection.

If it is desirable to simply provide local units of government with additional tax sources, the possibilities include: (1) separating tax sources, (2) extending the tax authority of local governments, (3) using supplementary rates, or (4) sharing revenues.¹

¹Grants-in-aid do not seem to be an appropriate policy if the idea is only to take advantage of the attributes of non-property taxes or the state's tax system. Grants-in-aid require some formula for distribution, e.g., population, population structure, fiscal capacity, and as such imply some purpose other than providing communities with alternative sources of revenue.

Separation of sources. A separation of sources involves the withdrawal of one unit of government from the use of particular taxes in favor of another unit. The states, for example, have withdrawn for the most part from the use of the property tax. The difficulty with this approach now is that there are few significant sources of revenue which the state governments are likely to relinquish. It is difficult to imagine the state government giving up, for example, the personal income tax, the general sales tax, the motor fuels tax, or the motor vehicle license--the most significant sources of revenue exclusive of federal transfers. The remaining sources of revenue are marginal, and some would be difficult to administer, e.g., cigarettes, beer, inheritance, corporate income.

Extension of taxing authority. If local units were allowed to adopt whatever taxes they wished, regardless of whether the state used such taxes, the most likely candidates, but not the only ones, are the income or general sales taxes.

For the most part, localities which have adopted the income tax have imposed it at a flat rate on selected sources of income. For administrative reasons, the tax is imposed mainly on wages and salaries, income from unincorporated enterprises, and corporate income. The principal source of income which goes untaxed is property income--dividends, interest, etc. The taxation of property income involves extensive and elaborate investigative techniques which most localities have been unwilling to undertake. In addition,

certain sources of income, such as public relief, unemployment compensation, casual sales, etc., are specifically exempted.

Localities which use the income tax may tax non-residents who work in the area, as well as residents. This is justified on the grounds that non-residents use the public services of the locality where they work, although it might be argued that their tax bill may substantially exceed benefits received. If a number of localities adopt income taxes, then the double-taxation argument emerges, i.e., a person is taxed where he works and where he lives. However, the relevance of the issue is questionable. A non-resident would pay taxes at his place of residence whether the tax was on income, property, or what have you. The form of taxation does not alter the fact that a non-resident enjoys the benefits of the public services provided by the locality where he works.

Local income taxes have been attacked on equity grounds because the rates are flat, and there is generally no provision for exemptions or credits. Thus, the tax is not related to ability to pay. Furthermore, the tax is discriminatory because it falls mainly on wage and salary income. Although these features of the local income tax may be objectionable, it remains to be proved that a local income tax is more inequitable than the property tax or other forms of local taxation. An income tax may be less regressive than a property tax and, in any case, income is probably a better measure of ability to pay than the value of a person's property.

The income tax has the advantage of being more responsive to growth than property taxes. Incomes and prices rise together, so that rising costs from this source are met, in part, automatically with an income tax. If the wages and salaries of government employees must be increased because of rising incomes in the private sector, the revenues will likely be forthcoming. On the other hand, the value of the property tax base tends to be more rigid because of a reluctance to assess property values upward.

While the income tax is responsive to growth, the yield falls when incomes fall, forcing communities to cut outlays or borrow. Traditionally, most localities prefer stable revenues, but it is not clear that this is a virtue. Requiring citizens to pay taxes in the face of declining incomes forces them to cut outlays, dissave, or borrow. It would seem preferable for the government (state, local, and federal) to absorb the shock of recessions rather than have the burden spread indiscriminately among individuals and families whose incomes are linked with fluctuating or declining industries.

Another question of considerable importance is the impact of an income tax on business and location decisions. Where withholding is instituted there is an additional expense borne by businessmen, but this is likely to be minimal because procedures for withholding are already in use for the state and federal governments. The effect of a tax on profits may be no greater

than if property taxes were higher in lieu of an income tax, and the income tax has the additional advantage of varying directly with profits instead of having the more or less fixed cost characteristic of the property tax.

The fear is frequently expressed that an income tax will encourage residents to move out of the taxing district or discourage others from locating there. It is not clear, however, that the tax has this effect. The important consideration, it would seem, is the over-all tax rate, equity, and preferences for public services. The over-all tax rate in a community (A) with an income tax and a property tax may not be any higher than a community with only a property tax (B), and if the combination of taxes in A is considered more equitable than the taxes in B, there would be no inducement to migrate to B. Even if the taxes in A are higher, they might be higher whether there is an income tax or not. The higher taxes may simply be a reflection of the community's preferences for more or better public services-- better schools, superior police protection, better recreational facilities, etc.

The second major non-property tax source available to local governments is the general sales tax. This tax is probably easier to administer than the income tax because there are fewer returns to handle and audit. Compliance is much more difficult with the use tax, and collections are confined for the most part to large purchases.

Like a local income tax, the general sales tax has the advantage of taxing non-residents who use the public services of the taxing district. This is offset, in part, however, by an incentive for residents to purchase outside the locality. The importance of shopping outside the taxing district will depend on the accessibility of near-by shopping areas and the size of purchases. A local general sales tax undoubtedly encourages some retailers to locate outside the taxing area, especially if the taxing community is small and shopping areas are available near by. Such taxes may also increase resistance to annexation, but differential property tax rates have the same effect. These problems would become less serious the more widespread local sales taxation becomes.

The sales tax is, of course, regressive, and its use is resisted on these grounds. In Iowa, the sales tax is less regressive than in other states because of the inclusion of a number of services, but probably more regressive than states which exempt food. If the choice is between a flat income tax on mostly wage and salary income and the sales tax, the sales tax may be no more inequitable than an income tax. Furthermore, a sales tax is probably less inequitable than the property tax.

There are other taxes which might be considered for local use, e. g., motor fuels, alcoholic beverages, tobacco products, public utilities, amusements, and inheritance; but for one reason or another the choice would appear to lie with the income

or general sales tax. Local governments already receive part of the motor fuels tax and liquor store revenues from the state. An additional tax on automobiles, such as a wheel tax, would simply be an extension of the property tax. Revenues from a local tobacco tax would not be significant and would undoubtedly give rise to evasion and enforcement problems. The yield from amusement and inheritance taxes would also be marginal. A public utilities tax could yield substantial revenue, and administration of the tax is quite simple since there are few taxpaying units. A public utilities tax is regressive, but it may be no more or less regressive than the property tax. If it is as regressive as the property tax, not much is gained in its use. If the tax is based on price, it will discriminate against small consumers since the price generally declines with increases in the quantity purchased.

Supplementary rates. Instead of extending the taxing authority of local governments, localities might be granted authority to levy rates supplemental to state tax rates, e.g., the income tax or sales tax. The state would in turn collect and return the revenue to the localities. Compared to a policy of extending the taxing authority of localities, supplementary rates have much merit in terms of eliminating duplicative machinery, lowering the cost of collection, marshalling the enforcement and compliance powers of the state, avoiding different tax bases, and probably increasing the yield. Furthermore, the effect of this approach on local

autonomy and responsibility would not be an issue, as is the case with shared revenues, since communities have the option of levying a tax.

If local communities were to levy rates supplemental to the state's income tax, this would meet some of the objections to the use of local income taxes. It was pointed out above that where local governments have adopted their own income taxes, for the most part rates have been flat and on wage and salary income, with no allowance for exemptions or credits. With supplemental rates it would be possible to take advantage of the features of the state income tax--exemptions, deductions, progressivity--and to include income which might otherwise go untaxed.

Shared revenues. A fourth possible solution to inadequate revenue sources is shared revenues. With this approach, the state government collects a tax and returns a certain portion to local governments. Like supplementary rates, this kind of state assistance eliminates duplicative administrative machinery and has the additional advantage of rate uniformity. With uniform rates, tax-induced intra-state migration and inter-area transactions do not arise. On the other hand, this approach is frequently resisted on the grounds that local autonomy is weakened (localities would not choose to levy the tax), some communities would receive funds they do not need, and there may be a tendency to spend the funds unwisely since no responsibility is attached to raising the revenue. If, on the other hand,

communities need more revenues and cannot raise them to desired levels with the property tax, there is some loss of autonomy or freedom of action in any case. The obstacle may be an inequitable or politically unpopular tax. Furthermore, communities which receive more funds than they need have the option of lowering property taxes, and if the political process is effective at all, this is likely to occur in the long run.

III. EVIDENCE OF NEED FOR STATE ASSISTANCE TO LOCAL GOVERNMENTS IN IOWA

The discussion above was concerned with the general rationale for state assistance to local governments and some of the problems involved in implementing various intergovernmental fiscal policies. Since the rationale for state assistance to local governments is to raise performance levels, redistribute income, or provide localities with better revenue sources, this section is concerned with whether or not performance levels are low in Iowa, whether or not there are significant variations in needs and fiscal capacity among Iowa's counties, and whether or not the state tax structure is superior to the local tax structure. In other words, is there evidence of a need for state assistance to local governments in Iowa?

Performance Levels

The three principal categories of state-local public expenditures are education, highways, and public welfare. Since welfare expenditures are financed and administered for the most part by the state, it is unlikely that expenditures for this purpose would be low because of inadequate local tax resources. Therefore, our attention is focused on the level of education and highway expenditures.

The level of education expenditures. One cannot say whether public expenditures for a particular function are adequate unless there is some agreement on what criteria are appropriate for making

such a judgment and sufficient information is available to make the criteria operational. To make some judgment about the adequacy of local education expenditures we assume that at least one criterion is generally acceptable: at a minimum, Iowa's students ought to be given educational opportunities which are equal to the education opportunities of other students in Iowa and the rest of the nation.

In terms of current expenditures, Iowa is performing somewhat better than the rest of the nation. In a cross-section regression analysis of the 48 contiguous states for the years 1958-64, current education expenditures per student at the local level were regressed against time, per capita income, square miles per student (density), the per cent of the population in cities of 50,000 to 500,000 inhabitants, and the per cent of the population in cities having more than 2,500 inhabitants. There was a positive association between expenditures and all the independent variables except the per cent of population living in cities having 50,000 to 500,000 inhabitants (Table 3). These variables explained 78 per cent of the variation in current expenditures over the seven-year period.

Given the value of the independent variables for Iowa in 1958-1964, the regression equation predicts a level of current education expenditures below actual current education expenditures. The average residual, on a per student basis, was \$76 over the seven-year period, with no apparent trend (Table 3). In other words, Iowa was performing at a higher level in terms of per student current

expenditures than expected, given the factors which seem to explain the variation in expenditures among the states.

Table 3
VARIABLES EXPLAINING INTERSTATE LOCAL
EXPENDITURES: POOLED EXPENDITURES 1953-1964

	<u>Per cent variation explained</u>	<u>Time</u>	<u>Per capita income</u>	<u>Square miles per student</u>	<u>Per cent of population in cities 50,000- 500,000</u>	<u>Per cent of population in cities 2,500 and over</u>
Current expenditures per student	0.78	+	+	+	-	+
Capital expenditures per student	0.44	+	+	+		+

If one simply looks at current expenditures per pupil, expenditures in Iowa were just about equal to expenditures per pupil in the nation as a whole in 1963-1964 (Table 5). This has not always been the case. In 1961, for example, expenditures in Iowa were somewhat below the national average. Of the seven surrounding states, Iowa ranked in the middle in 1963-1964.

An analysis of capital expenditures for local schools indicates that Iowa is performing below what would be expected from the prediction equation. The independent variables used in the regression equation and their association are shown in Table 3. Actual capital expenditures are below the predicted values in every year but two. The average residual, in per student terms, is -\$15.40 (Table 4).

Table 4

ACTUAL AND PREDICTED
EDUCATION EXPENDITURES, IOWA: POOLED 1958-1964
(DOLLARS PER STUDENT)

	<u>Actual</u>	<u>Predicted</u>	<u>Residual</u>
Current expenditures per pupil	493.89	417.89	76.00
Capital expenditures per pupil	55.11	70.51	-15.40

Table 5

ESTIMATED CURRENT EXPENDITURES
PER PUPIL IN AVERAGE DAILY
ATTENDANCE IN PUBLIC ELEMENTARY
AND SECONDARY DAY SCHOOLS

<u>State</u>	<u>Current expenditure per pupil</u>
Minnesota	\$509
Wisconsin	498
Illinois	479
IOWA	456
Missouri	419
South Dakota	403
Nebraska	385
United States	455

Source: Digest of Educational Statistics,
United States Department of Health,
Education and Welfare, 1964 edition.

Whether Iowa's per student expenditures are equal to, greater, or less than the national average does not in itself prove that Iowa is doing as well as, better, or worse than the rest of the nation in terms of quality. It may be that it takes more expenditures to provide a given quality of education in Iowa. The fact that expenditures per pupil is not an adequate index of quality is illustrated by the following facts. Although there are a number of factors which affect the quality of education, the competency of teachers is certainly a major factor, and the more competent teachers command higher salaries. Of the seven states reported here, Iowa ranked fifth in terms of average annual salaries for teachers, exceeding Nebraska and Missouri. Nationally, average salaries for teachers were a little more than 12 per cent higher in the nation as a whole than in Iowa (Table 6).

Looking at the educational attainment of teachers in 1962-1963, 55.7 per cent of Iowa's elementary teachers had at least four years of college education (Table 7). Of the 33 states for which data are available, this compares to a high of 99.8 per cent for Oklahoma and a low of 26.5 per cent for South Dakota. More significantly, Iowa ranked 31st among the 33 states for which data are available.

Table 6

ESTIMATED AVERAGE ANNUAL SALARY
OF INSTRUCTIONAL STAFF IN PUBLIC
ELEMENTARY AND SECONDARY DAY SCHOOLS
1963-1964

<u>State</u>	<u>Average annual salary</u>
Illinois	\$6,810
Minnesota	6,300
Wisconsin	6,120
Missouri	5,626
IOWA	5,494
Nebraska	5,030
South Dakota	4,500
United States	6,164

Source: Digest of Education and Statistics,
United States Department of Health,
Education and Welfare, 1964 edition.

These facts should not be interpreted to mean that in terms of the quality of education, Iowa is in fact performing at levels below the national average. To determine Iowa's position relative to other states, more facts are needed, e.g., the number and quality of course offerings, library facilities, the achievement of students, etc. However, these facts do suggest that if the quality of education in Iowa is inferior relative to other states, it is not because of a failure to provide the same amount of resources as other states (on the average); rather it is because it takes more expenditures for a given quality of education. There

Table 7

ALL ELEMENTARY-SCHOOL TEACHERS IN SERVICE

<u>State</u>	<u>With at least 4 years of college</u>	<u>Rank of state</u>	<u>With less than 2 years of college</u>
Oklahoma	99.8%	1	---
Utah	99.2	2	*
Florida	97.9	3	0.1%
New Mexico	96.6	4	---
North Carolina	95.8	5	0.1
Colorado	95.1	6	0.1
Alaska	93.3	7.5	0.3
South Carolina	93.3	7.5	0.6
Missouri**	93.0	9	2.1
Connecticut	91.7	10.5	0.2
Louisiana	91.7	10.5	0.4
Georgia	90.0	12	*
Hawaii	89.9	13	---
Delaware	88.8	14	1.9
Kansas	88.5	15	---
Arkansas	88.4	16	0.2
Alabama	87.2	17	2.5
District of Columbia	86.5	18	0.7
Oregon	85.9	19	0.3
Kentucky	84.1	20	0.7
Maryland	80.3	21	3.3
Wisconsin	78.0	22	0.2
Tennessee	77.1	23	0.9
West Virginia	77.0	24.	2.4
Virginia**	73.1	25	---
Ohio	71.3	26	1.4
Minnesota	62.3	27	4.7
Idaho	61.4	28	0.1
Vermont	59.5	29	---
Maine	58.6	30	7.8
IOWA	55.7	31	4.0
Nebraska	42.9	32	11.7
South Dakota	26.5	33	5.6

*Less than 1/10 of 1 per cent.

**

**Data for 1962-1963. Data are not available in Arizona, California, Illinois, Indiana, Massachusetts, Michigan, Mississippi, Montana, Nevada, New Hampshire, New Jersey, New York, North Dakota, Pennsylvania, Rhode Island, Texas, Washington, and Wyoming.

Source: National Education Association, Teacher Supply and Demand in Public Schools, Research Report, 1964-R9, 1964, p. 21.

are several reasons why this might occur. We have already seen that it would not be attributable to higher teacher salaries. However, there may be factors which operate to require relatively more teachers in Iowa than in the United States as a whole. For example, the pupil-teacher ratio in Iowa has been somewhat lower than the rest of the nation,¹ and this may be due to a more dispersed population, more school districts, and/or attempts to upgrade quality. Nevertheless, the proportion of total current expenditures for instructional purposes has been somewhat lower in Iowa than the United States as a whole. On the other hand, the proportion of total current expenditures for administration, operation of plant, and other services (such as transportation) are somewhat higher in Iowa (Table C). This again suggests that a dispersed population and the number of school districts may be important cost-determining factors. In this connection, it is interesting to note that Iowa had about 423 students per school district in 1961-1962, while for the United States the figure was 1,051.²

Comparing the educational opportunities of Iowa's students with students in the rest of the nation is not the only acceptable

¹In 1959 the teacher-pupil ratio for public secondary schools was 13.8 in Iowa and 22.7 in the United States (Statistical Abstract, 1963, p. 133).

²The number of school districts are from United States Department of Health, Education and Welfare, Digest of Educational Statistics, 1964 edition. Enrollment figures are for the fall of 1961 from Statistical Abstract, 1962.

Table 8

PER CENT OF TOTAL CURRENT PUBLIC ELEMENTARY AND
SECONDARY EDUCATION EXPENDITURES FOR VARIOUS FUNCTIONS:
UNITED STATES AND IOWA, 1961-1962

	<u>United States</u>	<u>Iowa</u>
Administration	4.4	6.2
Instruction	67.3	65.4
Operation of plant	8.6	9.8
Maintenance of plant	3.2	3.0
Fixed charges	7.2	5.2
Other services	8.0	9.2
Other programs	<u>1.3</u>	<u>1.2</u>
	100.0	100.0

Source: Computed from United States Department of Health, Education, and Welfare, Digest of Educational Statistics, 1964 edition.

critereion in judging the adequacy of education expenditures in the state. If we abstract from the income redistributive effects of an increase in education expenditures and evaluate capital expenditures¹ on the basis of their "efficiency," then some judgment must be made about the rates of return (increases in aggregate output and income) on alternative forms of private and public investment.

For the nation as a whole, the rate of return on education appears to be quite substantial (estimates are as high as 17 per cent) and "probably exceed the return to investment in private and in non-educational public expenditures."² Because of the lack of information, it is not known whether the same circumstances exist in Iowa or not. The national figures indicate, however, that growth potential is directly related to the quality of education, and one simply has to rely on intuitive judgments about whether the rate of return is higher in Iowa on this form of investment than on alternative forms of investment.

We cannot, of course, ignore the redistributive effects of an increase in education expenditures. It has its costs as well as its benefits.³ The benefits include whatever increase in

¹Expenditures on education are considered as a capital expenditure because of the effect of education on increases in output and income.

²Don Winkelman, Cost of Public Education in Iowa, Special Report No. 44, Agricultural and Home Economics Experiment Station, Cooperative Extension Service, Iowa State University, February, 1965, p. 9.

³One might also say that a failure to increase educational outlays has its costs as well as its benefits.

satisfactions accompanies an increase in educational opportunities. That is, some people will feel better off because educational opportunities are greater or better distributed; students may feel better off because of the inherent satisfactions derived from a better education and increased earning power; other persons may be better off because of the possibilities of a greater rate of growth. Against this must be balanced whatever loss of satisfaction accompanies an expansion of expenditures. Since economic resources are limited, an expansion in one area means a contraction or a reduced rate of expansion in the private sector or in the provision of other public goods. Those people who bear the cost of the reallocation of resources are not necessarily those who derive the benefits from it, or, at least, there is not a strict correspondence between costs and benefits received by individuals.

While educational opportunities may be favorable or unfavorable when compared to other states, this reveals nothing about the distribution of opportunities within the state. Even if expenditures or quality are adequate on the average, it may be necessary to raise the performance level in localities where educational opportunities are not adequate. If performance levels are not to fall in other localities, the state-wide average would have to increase.

In 1962, current expenditures per public school enrollee averaged \$408 among Iowa counties. The lowest expenditure was \$222,

and the highest was \$586. Twenty-six of the 99 counties exceeded the mean by more than one standard deviation.

Counties which exceeded mean current education expenditures by more than one standard deviation are noted in Table 9. Counties which exceeded mean median family income by more than one standard deviation are also shown. For 54 of the counties, educational expenditures and median family income fell within one standard deviation from the mean.

It is interesting to note that 11 of the 14 counties which fall below mean family income by more than one standard deviation have educational expenditures which are above or within one standard deviation from mean education expenditures. Eleven of the 16 counties which had median family incomes which were above the mean by more than one standard deviation had educational expenditures more than one standard deviation below the mean or within one standard deviation.

This indicates that educational expenditures tend to be independent of income levels. This is confirmed by regressing per student expenditures on income and other (cost-determinant) variables. Income is not a significant variable. The evidence is that cost-determining variables, such as population density, are more important and that low income counties attempt, on the average, to do as well as higher income counties. It also suggests that if quality is directly related to income, the higher income counties obtain a

Table 9

COUNTIES ABOVE (+) OR BELOW (-)
 THE MEAN BY MORE THAN ONE STANDARD DEVIATION
 FOR MEDIAN FAMILY INCOME AND CURRENT EXPENDITURES
 PER PUBLIC SCHOOL ENROLLEE

	<u>Counties</u>	<u>Median family income (1960)</u>	<u>School expenditures per public school enrollee</u>
1	Adair*	-	
2	Adams**	-	+
3	Allamakee*	-	
4	Appanoose		
5	Audubon*	-	
6	Benton		
7	Black Hawk	-	-
8	Boone		-
9	Bremer		-
10	Buchanan		
11	Buena Vista		
12	Butler		+
13	Calhoun		
14	Carroll		+
15	Cass		
16	Cedar		
17	Cerro Gordo	+	+
18	Cherokee		
19	Chickasaw		
20	Clarke		
21	Clay		-
22	Clayton*	-	
23	Clinton**	+	
24	Crawford		
25	Dallas		
26	Davis		
27	Decatur	-	-
28	Delaware		
29	Des Moines**	+	
30	Dickinson		
31	Dubuque	+	
32	Emmett		
33	Fayette		
34	Floyd		
35	Franklin		
36	Fremont*	-	
37	Greene		+
38	Grundy		

Table 9 (cont.)

	<u>Counties</u>	<u>Median family income (1960)</u>	<u>School expenditures per public school enrollee</u>
39	Guthrie		
40	Hamilton		-
41	Hancock		
42	Hardin		
43	Harrison		
44	Henry		
45	Howard	-	-
46	Humboldt		+
47	Ida		
48	Iowa		+
49	Jackson		-
50	Jasper		
51	Jefferson		
52	Johnson		
53	Jones		
54	Keokuk		
55	Kossuth*	-	+
56	Lee**	+	
57	Linn**	+	
58	Louisa		
59	Lucas		
60	Lyon**	+	
61	Madison		-
62	Mahaska		
63	Marion		-
64	Marshall	+	+
65	Mills		
66	Mitchell		+
67	Monona		-
68	Monroe		
69	Montgomery		
70	Muscatine		
71	O'Brien		
72	Osceola*	-	
73	Page		
74	Palo Alto*	-	+
75	Plymouth		

Table 9 (cont.)

	<u>Counties</u>	<u>Median family income (1960)</u>	<u>School expenditures per public school enrollee</u>
76	Pocahontas		
77	Polk**	+	
78	Pottawattamie	+	-
79	Poweshiek		
80	Ringgold*	-	+
81	Sac		
82	Scott**	+	
83	Shelby		
84	Sioux		
85	Story**	+	
86	Tama		
87	Taylor*	-	
88	Union		
89	Van Buren		
90	Wapello**	+	
91	Warren**	+	
92	Washington		
93	Wayne	+	+
94	Webster		
95	Winnebago		
96	Winneshiek		
97	Woodbury**	+	
98	Worth		+
99	Wright		

* Median family income below the mean by more than one standard deviation and school expenditures above or within one standard deviation.

** Median family income above the mean by more than one standard deviation and expenditures below or within one standard deviation.

higher quality of education for a given level of expenditures than do low income counties (per student expenditures tend to fall with urbanization). Some quality may have to be sacrificed in lower income (more rural) counties because per unit costs are higher.

A policy of equalizing educational opportunities becomes a very difficult task in light of the fact that differences in expenditures among counties may not reflect differences in quality. This is not to say that an increase in expenditures would not raise quality; it simply means that it is difficult to determine, on the basis of inter-county expenditures comparisons, where expenditures ought to be allocated to reduce inequalities in educational opportunities.

Highway expenditures. Is there evidence that local governments are underperforming in the area of highways because of inadequate local resources or by failing to account for the spill-over effects of highway expenditures? In the 1960 Iowa highway study by the Public Administration Service, it was noted that Iowa's needs exceeded expected revenues by an annual amount of \$22 million a year over a twenty-year period, with the "principal deficit in the program for the support of (the) local county road network of almost 59,000 miles of roads, over 50 per cent of the total, which carry less than 5 per cent of the total traffic of the state."¹ The needs of

¹Public Administration Service, Financing Iowa's Highways, 1960, p. 69.

the county road systems were estimated at \$392 million over a 20-year period.

It should be pointed out that the "needs" of the highway system are engineering needs based on traffic volume, characteristics of traffic, relevant population data, etc. and are therefore only a rough indication of economic needs. That is, it should not be inferred that the increased benefits which might be derived from increased expenditures on highways are greater than the increased benefits which flow from the same amount of expenditure for private or other public purposes. Resources have alternative uses, and other social and economic "needs" have to be considered as well. Indeed, the 1960 highway study suggested that legislators "take cognizance of the relative demands of the several other state programs before they raise additional revenues for road purposes."¹ Further, the report went on to note that "It is considered that this (the county road system) is a general obligation which should be borne by the beneficiaries of the 58,000 mile local county road system. These are generally the rural residents who use them to get to and from their properties."²

With respect to the issue of distribution of funds to the various units of government, the highway fiscal study

¹Ibid., p. 85.

²Ibid., p. 84.

recommended that a higher relative share of revenue be allocated to the state and cities and towns, and a lower relative share be allocated to counties. It was recommended that 55 per cent be allocated to the state, 30 per cent to the counties, and 15 per cent to cities and towns. At the time this recommendation compared with a 42-50-8 per cent distribution of the Road Use Tax Fund to the state, counties, and cities and towns, respectively, and a 51-42-7 per cent distribution, if account is taken of the then special tax of 2 cents per gallon on motor vehicle fuel. Funds from the special 2-cent tax were allocated to the primary road fund. Currently the Road Use Tax Fund is allocated to the state, counties, and cities and towns on a 47-40-13 per cent basis, although a higher amount will be allocated to the state with the increase in the motor fuels tax by the 61st General Assembly.

At the present time, Iowa has one of the most extensive highway networks in the country. Only seven states have more road mileage than Iowa, and among these are Texas and California-- states which encompass a large area. Iowa accounts for 3.1 per cent of the total highway mileage in the United States and takes up 1.6 per cent of the land area. To maintain and upgrade such an extensive system requires substantial resources, and so long as revenue distribution formulae are not adequately related to

need, which seems to be the case, additional revenues will have to be raised to finance needs which follow population shifts, the location of economic activity, and changing travel patterns. This apparently, is the course Iowa has followed with the recent increase in the motor fuels and vehicle taxes and the stipulation that the increase in revenue from this source be allocated to the Primary Road Fund. The alternative would have been to allocate existing resources more efficiently.

Variations in Need and Fiscal Capacity

The second reason for state aid is to reduce variations in the gap between needs and fiscal capacity among localities. Need is measured here by population age structure, population density, and population change. The public needs of a community increase as it has more young people to educate, and more young and old people who have welfare needs. There is evidence that the per capita cost of providing public services rises with an increase in population sparsity. Population increases may require greater capital outlays, and a loss of population may require spreading certain fixed services over fewer people.¹

Possible indices of fiscal capacity include median family income, per capita market property values, and per capita personal

¹These indices are obviously not all-inclusive. They are only meant to be illustrative.

income. Median family income by county is available from the Census only for 1960. The shortcoming of this variable is that it fails to account for non-money income (e.g., income in kind). Per capita market property values by county are available for 1962 and later dates. These data suffer from a lack of completely satisfactory assessment sales ratios for commercial and industrial property. The personal income data are estimates of the Bureau of Business and Economic Research, University of Iowa, and are subject to error because of certain technical problems of income estimation.

The correlation between median family income and per capita market property values is $-.22$, and the coefficient for per capita personal income and property values is $.11$. The low correlation between income and property values is attributable to either (1) assessment--sales ratios which do not reflect the true value of industrial and commercial property, or (2) a relatively lower earning capability of agricultural property relative to other property. If the assessment--sales ratios for industrial and commercial property are, in fact, lower than those which were used to adjust assessed valuations upward, then the market value of industrial and commercial property used here is lower than it should be. An upward adjustment would probably show a higher, positive correlation between property values and income since more industrial and commercial property is located in more urban,

higher income areas. If this is the case, income and property values could be substitutes, to a degree, as measures of fiscal capacity.

On the other hand, if there is, in fact, a low correlation between property values and income, this, as we have seen, could be explained by a relatively lower earning capability of agricultural property. More rural counties are generally poorer in money income terms. The correlation coefficient between median family income and the per cent of the population living in rural areas is $-.56$. If there is little relationship between property and income, then income rather than property is the best measure of fiscal capacity because, in the long run, taxes must be paid out of income.

Of central importance here is the variation among counties in needs relative to fiscal capacity. If the indices of need and fiscal capacity are inversely related, or if the indices of need and fiscal capacity are unrelated, then the gap between needs and fiscal capacity rises as fiscal capacity falls. In the first case, needs rise as fiscal capacity falls, and in the latter case, needs remain constant as fiscal capacity falls. In either case the gap between needs and fiscal capacity rises, although the change in the gap is more severe when needs and fiscal capacity are inversely related. The mean and standard deviation of median family income, indices of need, and effort are shown in Table 10. Counties which

are within one standard deviation from the mean will be considered as having "average" needs or "average" income levels. Counties which are above the mean by more than one standard deviation will be considered as having "above-average" income levels or needs, and counties will be considered "below average" if the observations are below the mean by more than one standard deviation.¹ (Table 11)

Table 10

NEEDS, FISCAL CAPACITY, AND EFFORT:
THE MEAN AND STANDARD DEVIATIONS

	<u>Mean</u>	<u>S. D.</u>	<u>No. deviations by more than one S. D.</u>
Median family income	\$4,868	\$757	30
Per cent of population age 0-19	38.0	2.4	33
Per cent of population age 65 and over	13.2	2.2	28
Square miles per person	.031	.013	29
Taxes as a per cent of personal income	7.0	1.4	34

Of interest here is the fact that in a number of cases, need and fiscal capacity (as measured by median family income) are not directly related. That is, needs do not necessarily increase (decrease) in proportion to increases (decreases) in fiscal capacity. Thirteen counties which have "below-average" income have "average"

¹The exception here is population change. See footnote to Table 2.

Table 11

COUNTIES ABOVE (+) OR BELOW (-)
THE MEAN BY MORE THAN ONE STANDARD DEVIATION
FOR MEDIAN FAMILY INCOME AND INDICES OF NEED

Counties	(1) Median family income (1960)	(2) Per cent population 0-19 years (1960)	(3) Per cent population 65 years & over (1960)	(4) Sq. mi. per person density (1960)	(5) Projected per cent population change (1960-1970)
1 Adair*	-	-		+	-
2 Adams*	-			+	-
3 Allamakee*	-	+			
4 Appanoose		-	+		-
5 Audubon*	-				
6 Benton					
7 Black Hawk	-	+	-	-	+
8 Boone		-			
9 Bremer					
10 Buchanan		+			
11 Buena Vista					
12 Butler					
13 Calhoun					
14 Carroll		+			
15 Cass		-			
16 Cedar					
17 Cerro Gordo**	+			-	
18 Cherokee					
19 Chickasaw					
20 Clarke		-	-	+	-
21 Clay					
22 Clayton*	-				
23 Clinton**	-			-	+
24 Crawford					
25 Dallas					
26 Davis				+	
27 Decatur*	-		+	+	-
28 Delaware		+			
29 Des Moines**	+			-	
30 Dickinson					
31 Dubuque**	+	+	-	-	+
32 Emmet		+			
33 Fayette					
34 Floyd					
35 Franklin					
36 Fremont*	-	-		+	-
37 Greene					
38 Grundy					
39 Guthrie			+		-
40 Hamilton					
41 Hancock					
42 Hardin					

Table 11 (cont.)

<u>Counties</u>	(1) Median family income (1960)	(2) Per cent population 0-19 years (1960)	(3) Per cent population 65 years & over (1960)	(4) Sq. mi. per person density (1960)	(5) Projected per cent population change (1960-1970)
43 Harrison					-
44 Henry		-	+		
45 Howard*	-				
46 Humboldt					
47 Ida					
48 Iowa					
49 Jackson					+
50 Jasper					
51 Jefferson					
52 Johnson			-	-	+
53 Jones					
54 Keokuk			+		
55 Kossuth*	-	+	-		
56 Lee**	+			-	
57 Linn**	+		-	-	+
58 Louisa					
59 Lucas		-	+		
60 Lyon	+	+	-		
61 Madison			+	+	
62 Mahaska					
63 Marion		-			
64 Marshall**	+			-	
65 Mills					
66 Mitchell		+			
67 Monona				+	-
68 Monroe			+		
69 Montgomery		-	+		
70 Muscatine				-	
71 O'Brien					
72 Osceola*	-	+	-		
73 Page		-	+		-
74 Palo Alto*	-	+			
75 Plymouth		+			
76 Pocahontas					
77 Polk**	+		-	-	+
78 Pottawattamie	+	+	-	-	+
79 Poweshiek					
80 Ringgold*	-	-		+	-
81 Sac			+		
82 Scott**	+			-	+
83 Shelby		+	-		

Table 11 (cont.)

<u>Counties</u>	(1) Median family income (1960)	(2) Per cent population 0-19 years (1960)	(3) Per cent population 65 years & over (1960)	(4) Sq. mi. per person density (1960)	(5) Projected per cent population change (1960-1970)
84 Sioux		+			
85 Story**	+		-	-	+
86 Tama			-		
87 Taylor*	-	-		+	-
88 Union		-	+		-
89 Van Buren		-	+	+	
90 Wapello **	+		+	-	
91 Warren	+	+			+
92 Washington					
93 Wayne	+	-	+	+	-
94 Webster				-	
95 Winnebago					
96 Winneshiek					
97 Woodbury**	+			-	
98 Worth					
99 Wright					

*Median family income more than one standard deviation below the mean and at least three indices of need one standard deviation above the mean or within one S. D.

**Median family income more than one standard deviation above the mean and at least three indices of need more than one standard deviation below the mean or within one S. D.

In columns (2), (3), and (4), if a county has a plus sign, the "need" is relatively high, and if the sign is negative, "need" is relatively low.

In column (5) either a plus or minus sign indicates a relatively high need because population reductions as well as increases may exert an upward pressure on per capita public services.

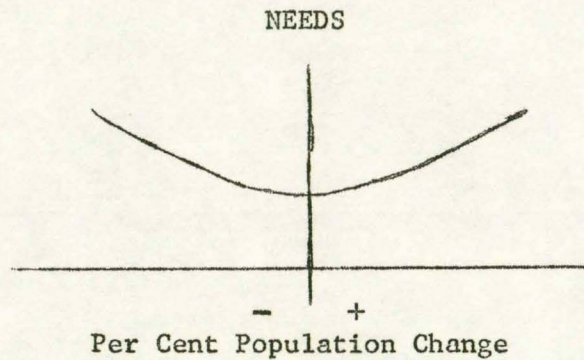
or "above-average" needs in at least three categories. On the other hand, there are 13 counties which have "above-average" income and "average" or "below-average" needs. For the most part, the remaining counties have "average" incomes and "average" needs.

A similar picture emerges if simple correlations are computed between median family income and indices of need. There is very little correlation between the school-age population and median family income, or between per capita personal income and the school-age population, indicating that educational needs, as they are determined by the school-age population, are independent of fiscal capacity (if it is assumed that fiscal capacity is measured by income).

The correlation between the proportion of the population 65 years of age and over and the median family income is negative ($r = -.47$), meaning that needs as they are measured by this variable rise, on the average, as incomes fall. Furthermore, incomes rise as population density rises. Hence, if the per unit costs of providing a given service level fall as population density increases, then there is once again an inverse relationship between an index of need and fiscal capacity.

There is a fairly high correlation between population change and median family income ($r = .77$), meaning that counties with higher population growth have higher incomes, and counties with slower population growth and higher population losses have lower

incomes. The needs of localities with population growth of a certain magnitude may be just as great as localities with a population loss of the same magnitude. Those counties with higher population growth must make greater capital and variable outlays, and it would seem that the higher the population growth the greater the adjustment must be. For counties which are having population losses, certain fixed outlays and some variable outlays must continue to be made, and it might be argued that the higher is the population loss the more severe is the adjustment in public service outlays. The relationship between needs and population change might appear as depicted below. While the relationship



may not be symmetrical, it is probably in the general direction as indicated. In this case, needs rise as fiscal capacity rises or falls.

There is also evidence that counties with low fiscal capacity tend to make a greater effort to provide public services. Tax collections as a per cent of personal income are inversely

correlated with per capita personal income ($r = -.77$) and median family income ($r = -.59$). This suggests that the costs of providing services of a given quality are higher for counties which are more rural and have lower population density, or that rural areas attempt to maintain quality in the face of low incomes.

Attributes of State and Local Tax Structures

A third reason for state aid is the superior attributes of state tax systems. The purpose of this section is to determine whether this is the case in Iowa.

One desirable feature of a tax system is that revenues increase with increases in the cost of providing existing government services--increases which are attributable to rising prices, rising wages, population shifts, etc. That is, it is assumed that services which are currently provided are generally acceptable (education, highways, welfare, police protection, etc.) and as the cost of these services rises for one reason or another, revenues ought to be forthcoming without tax rate changes to finance them. With this assumption, an increase in the quality of services or the addition of new services would be the only occasion for raising tax rates. One way of determining how responsive the various sources of revenue are to growth is by comparing their income elasticity coefficients.¹

¹The income elasticity coefficient compares the average rate of change in some variable (in this case, revenue) with the average rate of change of income. The coefficient is computed by dividing the rate of change in revenue by the rate of change in income. If the coefficient is less than one, income is increasing at a faster rate than revenues, and vice versa if the coefficient is greater than one.

The property tax, which is the principal source of revenue at the local level, is relatively inelastic with respect to income. One study covering the period 1910-1960 found the elasticity coefficient of the property tax in Iowa to be 0.86.¹ Some of the change in the property tax collections over this period was due to increases in millage rate rather than increases in the tax base (i.e., increases in the value of existing property or property additions). Another study showed that in the period 1956-1961 the elasticity coefficient of the property tax base was between 0.4 and 0.5, depending on the base used.² In contrast, the coefficient for the United States as a whole was greater than one. The lower coefficient for Iowa may be attributable to negligible population growth and a slower rate of industrialization and urbanization than the nation as a whole. Both of these factors imply a lesser rate of residential, commercial, and industrial property additions, as well as a slower growth in the demand for existing property. Further, employment and income are falling in some areas of the state, so that rising property values in growing and prosperous areas of the state are offset by falling or stagnant values elsewhere.

¹Deil S. Wright and Robert M. Marker, "A Half-Century of Local Finances: The Case of Iowa," National Tax Journal, Vol XVII, No. 3, pp. 274-291.

²The bases used were the assessed value of all property, assessed value of locally assessed real property, and the market value of locally assessed property. See B. Bridges, "Income Elasticity of the Property Tax Base," National Tax Journal, Vol. XVII, No. 3.

The state's over-all tax system is more elastic than the local tax structure. The income elasticity coefficient for the over-all tax structure was 1.15 for the period 1954-1965. The elasticity coefficient for the major taxes is shown in Table 12. Of the major taxes, the sales tax, motor fuel tax, motor vehicle license, and cigarette taxes are inelastic. The income tax, on the other hand, is highly elastic.

In terms of equity, the over-all state tax structure (state and local) is regressive, with the property tax as a principal source of regressivity. The state's income tax is mildly progressive; the sales tax is mildly regressive; and the sum of all "other" taxes is more regressive than the sales tax.¹ Some of the taxes used by the state, therefore, offer some opportunity for lessening over-all regression.

To lessen the reliance on the property tax and provide localities with alternative sources of revenue, tax levies and collections on behalf of local governments by the state government offer certain advantages compared to extending the authority of local governments to adopt non-property taxes. The possible advantages include a lower cost of collection, uniform administration, an identical tax base, greater compliance, and a larger yield.

¹Research Memorandum II.

Table 12

ELASTICITY COEFFICIENT OF
MAJOR REVENUE SOURCES OF
THE STATE GOVERNMENT, 1954-1965

<u>Tax</u>	<u>Coefficient</u>	<u>Yield, 1965</u> <u>(millions of dollars)</u>
Sales	0.71	77.6
Personal income	2.09	57.4
Motor fuels	0.51	65.7
Motor vehicle license	0.67	54.3
Cigarettes	0.55	15.2
Beer	0.07	3.4
Corporate income	1.09	5.9
Inheritance	1.62	10.0
Use	1.94	17.3
Liquor store profits	1.31	11.9
Ten per cent allocation of liquor store sales to local governments	0.69	5.2
Total tax and non-tax revenues ^a	1.15	345.1
Total appropriable tax revenues ^b	1.22	217.0

^aThis is not the same figure of general revenue published by the Compendium of State Government Finances. It does not include, for example, federal revenues.

^bExcludes motor fuels tax and motor vehicle license. Includes minor taxes not shown above and non-tax revenue such as fees, interest, etc.

IV. INTERGOVERNMENTAL REVENUE FLOWS IN IOWA

The first part of this study discussed the reasons for, and problems involved in, rendering various forms of state assistance to local government. Given the rationale for state assistance to local governments discussed in Part I, the second part was concerned with whether conditions existed in Iowa which justified state assistance to local government. This part analyzes the actual revenue flows in Iowa and the extent to which they deal with the problems discussed in Part I. There is first an analysis of general trends in revenue flows and then a description and analysis of specific state-local programs.

An Overview of Revenue Flows

From 1954 to 1965, state intergovernmental expenditures in Iowa increased from \$87 million to \$149 million, about a 70 per cent increase. In 1965, three categories of expenditures accounted for 97 per cent of state intergovernmental expenditures: highways (38 per cent), education (35 per cent), and general support (24 per cent) (Table 13). General local government support includes such items as the homestead credit, military credit and the distribution of part of liquor store sales.

Figures on intergovernmental revenue flows from the state government to the local government are misleading because they do

Table 13

STATE TO LOCAL INTERGOVERNMENTAL EXPENDITURES
IOWA, 1954-1965
(THOUSANDS OF DOLLARS)

<u>Year</u>	<u>Total</u>	<u>Education</u>	<u>Highways</u>	<u>Health and hospitals</u>	<u>General local support</u>	<u>Other</u>
1954	87,127	26,119	31,730	1,155	27,575	548
1955	90,437	27,369	33,754	661	28,136	517
1956	106,697	35,250	41,981	737	28,236	493
1957	105,487	37,065	38,390	807	28,716	509
1958	108,762	36,368	41,373	487	30,032	502
1959	111,058	38,232	40,920	713	30,677	516
1960	112,749	38,507	40,470	776	31,737	1,259
1961	119,542	41,506	43,592	1,370	32,280	794
1962	123,989	43,935	45,613	717	33,007	717
1963	138,127	49,253	52,614	1,063	33,751	1,446
1964	137,833	47,093	54,054	888	34,163	1,635
1965	148,629	52,232	56,777	1,048	35,337	3,235

Source: Compendium of State Governmental Finances.

Table 14

INTERGOVERNMENTAL REVENUE FROM LOCAL GOVERNMENT TO STATE GOVERNMENT,
IOWA, 1954-1965
(THOUSANDS OF DOLLARS)

<u>Year</u>	<u>Total</u>	<u>Welfare</u>	<u>Highways</u>	<u>Health and hospitals</u>	<u>Education</u>	<u>Other</u>
1954	11,645	3,034	-	8,283	-	328
1955	11,356	2,980	-	8,095	-	281
1956	12,861	2,963	-	9,531	-	367
1957	14,594	3,337	1,129	9,802	-	326
1958	15,883	3,543	1,106	10,913	-	321
1959	29,710	3,692	14,398	11,260	-	360
1960	26,015	3,908	9,092	12,581	78	356
1961	27,351	4,598	9,471	12,776	81	425
1962	19,647	4,319	2,504	12,338	78	408
1963	23,148	5,298	3,401	13,929	90	430
1964	25,499	5,436	6,018	13,509	56	480
1965	26,802	6,646	7,817	11,679	79	521

Source: Compendium of State Governmental Finances.

not reveal the full extent to which responsibility for financing or carrying on governmental activities has been lodged with the state government. In the first place, it is necessary to make an adjustment for intergovernmental revenue flows from the local governments to the state government. In 1965, this amounted to \$26.8 million, up from \$11.6 million in 1954. In 1965, these funds went for the support of health and hospitals (44 per cent), highways (29 per cent), and public welfare (25 per cent) (Table 14). Support for highways began in 1957, and has ranged from \$1.1 million in that year to \$14.4 million in 1959. Support for public welfare increased from \$3 million to \$6.6 million over the decade, and local support for health and hospitals rose from \$8.3 million to \$11.7 million in 1965.

If revenue flows from the local governments to the state government are subtracted from the state government's intergovernmental expenditures, state support to local governments is reduced from \$149 million to less than \$122 million in 1965. While this adjustment gives a better indication of the extent to which the state government supports local governments, it is still misleading, particularly when compared to the amount of state aid to local governments by other states. To make any meaningful inferences about the relative importance of state aid, it is necessary to know something about the allocation of responsibility between the state and local governments for carrying out particular government functions. State aid for a particular function may be negligible in some states because the

state governments have direct responsibility for carrying out that activity. For example, one of the areas in which a division of responsibility between units of government makes a considerable difference is public welfare. In a number of states, including Iowa, the local governments play a minimal role in administering and financing the aid programs under the Social Security Act, while in other states, local governments receive state aid for carrying out these programs.

About the only category of state aid for which it is possible to make interstate comparisons is state aid to education. None of the state governments in the Plains region made direct expenditures for local schools in 1965, and of the other states which made direct expenditures the sums are, on the whole, minor when compared to total education expenditures in the states. In 1965, Iowa's per capita state aid expenditures for education amounted to \$18.92, while the weighted average for the Plains states was \$30.60 and the average for the United States was \$43.27.¹

While total intergovernmental expenditure figures cannot be used to make meaningful inferences about the extent to which the state government supports local public services (with aid, or by assuming direct responsibility for some functions), it is possible to determine the degree of reliance on the different levels of

¹United States Department of Commerce, Compendium of State Government Finances, 1965.

government by comparing the relative amount of total revenue each raises. In general, the more revenue the state government raises, the more local governments are relieved of the financial responsibility for government functions. Other things equal, the higher the state aid and/or the more direct responsibility states assume for government functions, the higher the relative amount of revenue raised by state governments.

Currently, there is more reliance on local governments to support total government services in Iowa than in the United States as a whole. In 1964, the local governments raised 49.9 per cent of total general revenue, whereas for the United States the corresponding figure was 46.1 per cent. The state government in Iowa raised 36.7 per cent of total general revenue, whereas state governments as a whole contributed 41.2 per cent to total general revenue. The federal government accounted for the remaining revenue--13.3 per cent in Iowa and 14.6 per cent for all states (Table 15).

Since 1958, there has been an increase in the reliance on local governments in Iowa to support government services. The increase occurred in 1961, but there is no apparent trend since then. At the same time, there has been a slight decline in the relative amount of revenue raised by the state government. On the other hand, for the states as a whole, there has been a gradual reduction in the relative amount of revenue

raised by local governments, while the amount contributed by state governments has remained about the same. The difference is accounted for by a somewhat larger share of federal revenue since 1958.

Table 15

PER CENT OF GENERAL REVENUE
ORIGINATING WITH LOCAL GOVERNMENTS

<u>Year</u>	<u>Iowa</u>	<u>United States</u>
1958	47.7	47.1
1959	46.6	45.4
1960	46.7	45.9
1961	51.9	47.9
1962	51.1	47.6
1963	51.5	47.6
1964	49.9	46.1

Source: United States Department of Commerce,
Governmental Finances.

School Aid

Description of aid programs.¹ The sources of state aid to local schools and the present amount of funds annually appropriated for each purpose include:

¹A general description of the school aid programs is included in School Business (Revised Edition), Iowa State Department of Public Instruction, 1965, pp. 29-31.

1. General aid, \$33.5 million
2. Supplemental aid, \$4 million
3. Transportation aid, \$4 million
4. Special education aid, \$2.5 million
5. Vocational aid, \$2.4 million
6. Mining camp aid, \$55 thousand
7. Emergency aid, \$200 thousand
8. Driver education aid, \$1.2 million

In order to qualify for general aid, a school district must levy 15 mills for the General Fund.¹ The distribution of general aid is on a per pupil basis, and the amount of aid varies with the general class level of students.²

A school district receives supplemental aid if it has levied at least 15 mills for the General Fund, and if it cannot raise \$120

¹Expenditures from the General Fund cover such items as administrative and instructional costs, operation and maintenance, and the purchase of equipment.

²More specifically, the aid formulae are:

- a. 17 cents per day per elementary pupil
- b. 20 cents per day per high school pupil
- c. \$1 per day per resident junior college student plus the full time equivalent of resident students carrying less than 12 semester hours.
- d. \$2.25 per day per non-resident junior college student plus the full-time equivalent of non-resident students carrying less than 12 semester hours.
- e. \$1.30 per day per pupil to a district which pays tuition to an area vocational technical school.
- f. \$1.50 per day per student in an approved area vocational technical program. The students must have graduated from high school or be over the age of 21.

per elementary pupil and \$170 per high school pupil with a levy of 10 mills in districts without high schools or 15 mills in districts with high schools.¹ The amount of aid allocated to a district is determined by adding \$170 times the number of high school students and \$120 times the number of elementary students, and subtracting from this sum the proceeds of the 10 or 15 mill levy.

Transportation aid is allocated on the basis of \$30 per pupil per year transported by bus, and \$23 per pupil per year when bus transportation is not practicable and approved special transportation is provided (e.g., common carrier). The law specifies the circumstances which require local schools to provide transportation.

A school district which has an approved program for educating handicapped children is entitled to receive special education aid in the amount that the cost of educating handicapped children exceeds the cost of educating students in the regular curriculum.

A school district which maintains an approved vocational education program is entitled to reimbursement for one-half the expenditures for the salaries and travel of vocational teachers. Aid for this purpose comes from both state and federal funds.

The distribution of mining camp aid is at the discretion of the state superintendent of instruction. It is intended to be distributed to mining camp areas which have a low assessed valuation.

¹These levies are exclusive of the levy for the school house fund, which covers expenditures for construction, repairs, improvements, sites, principal and interest on bonded indebtedness, and the rental of buildings.

Emergency aid is allocated to districts which cannot maintain "reasonable standards" without levying a tax in excess of 100 mills, and is allocated at the discretion of the state superintendent of instruction.

Driver education aid is allocated in an amount not to exceed \$30 for each pupil who successfully completes a driver education course. School districts are required to offer or make available a course in driver education.

In all cases, if the appropriations are insufficient to cover the total claims for aid the funds are pro-rated, i.e., the aid each district applies for is multiplied by the ratio of appropriations to the total claims of all districts.

The effect of school aid on performance levels. The only school aid programs which may stimulate school expenditures for specific functions are special education aid and vocational aid. If this is one of the purposes of these aid programs, an implicit assumption is that these functions ought to be encouraged but they are not important enough in the total scheme of things to require all districts, or at least districts which "need" such programs, to offer or make them available. While these stimulative aids may encourage school districts to undertake or expand special and vocational education programs, this does not mean that either total education expenditures or total state and local expenditures will increase by the amount of the increases in expenditures on

special or vocational education. Stimulative aid programs may instead induce a substitution of stimulated functions for other educational programs, or induce a substitution of educational expenditures for other (non-educational) government services.

Transportation aid and driver education aid are not stimulative aid programs because school districts are required by law to provide these services (in the case of transportation, school districts are required to provide this service under specified circumstances).

The other forms of aid--general aid, supplemental aid, mining camp aid, and emergency aid--differ from the aid programs discussed above in that there would be no tendency to substitute one educational program for another. On the other hand, these aids may either cause educational expenditures to be higher or property taxes to be lower. If the aids induce an increase in educational expenditures, other public expenditures may in turn be lower.

The relation of school aid to needs, fiscal capacity, and effort.

Before discussing the implications of the aid formulae in terms of need, fiscal capacity and effort, it is necessary, perhaps, to be reminded that need refers to variations in the cost of providing a given level of services. Total needs or costs will vary with the number of students to be educated and factors which affect per unit (say, per student) costs.

Nearly all the school aid formulae take some account of variations in the total cost of providing educational services. General aid, supplemental aid, transportation aid, and driver education aid are all distributed on a per pupil basis.¹ In addition, some of the aid programs take into account variations in per unit cost. The formula for distributing transportation aid recognizes that it is more costly to transport children by school bus than, say, common carrier. The formula is not geared to variations in per unit cost of transporting students among school districts providing the same type of transportation. Such variations in cost may or may not be significant.

Special educational aid is designed to cover whatever extra costs are associated with special education, and as such varies directly with per unit cost. On the other hand, the expenses of vocational education are only partially covered by state funds, but that portion which is covered varies with the unit cost of providing this service to the extent per unit cost varies with teachers' salaries. So long as the cost of providing driver education per student varies among districts, this form of aid is related to per unit cost up to the maximum amount of aid per student. Where the cost of driver education per student is in excess of \$30, the aid ceases to be related to per unit cost.

¹In addition, supplemental aid takes into account assessed property valuation.

The general aid formula takes into account variations in per unit cost of instruction between grade levels (i.e., between elementary schools and high schools), but it does not take into account variations in per unit cost of elementary or high school education among school districts--variations which may be caused by a rapid growth in enrollment, size of district, population density, etc.

The only forms of aid which attempt to relate aid to fiscal capacity are supplemental aid and mining camp aid. The formula for supplemental aid is based on the assumption that assessed valuation is a measure of fiscal capacity. This assumption is clearly invalid for two reasons. In the first place, the ratio of assessed valuation to market value may vary considerably among districts. Consequently, two districts which have the same per capita tax capacity (as measured by market values) and the same number of students can receive different amounts of aid. But even if the ratio of assessed valuation were the same for all districts, assessed valuation would not be a completely satisfactory measure of capacity. Since taxes are paid out of income, a more complete measure of capacity would include the level and distribution of income.

General aid and supplemental aid also attempt to induce a minimum effort on the part of school districts by requiring a 15 mill levy for the General Fund. However, the levy is on assessed

valuation so that the ratio of tax collections to market values is uneven and inequitable in terms of that objective. In other words, the "minimum" is not the same for all communities.

The Agricultural Land Tax Credit

Description of the credit. The agricultural land tax credit is applied to agricultural land of ten acres or more lying in school districts where the general school fund levy exceeds 15 mills. The amount of credit allocated to a farmer is equal to the millage rate in excess of 15 mills times the assessed valuation of farm property. If total appropriations for the agricultural land tax credit are insufficient to cover all claims, the credit allocated to each school district will be equal to its claims times the ratio of ~~total~~ total claims in the state to total appropriations. The annual appropriation for this purpose is currently \$15 million.

The credit and performance levels. The purpose of the agricultural land tax credit was to facilitate the merger of urban and rural school districts. That is, it was felt that such mergers were resisted by the rural population because the value of property per student was higher for farmers than the population living in towns and cities. Thus, farmers would be paying more to educate children than would urban dwellers.

To the extent that the quality of education depends on school reorganization, and to the extent that the agricultural land tax credit has facilitated reorganization, the over-all performance

level of education is higher. However, whether the land tax credit has had a significant effect on school reorganization is open to question. Industrialization, by reducing the rural-urban disparities in property values per student, has undoubtedly had some impact on reorganization as well. Further, given the allocation formula for the land tax credit, there is considerable uncertainty about how much farmers will benefit from the credit from time to time. Appropriations in recent times have not been sufficient to pay the full amount of claims in excess of the 15 mill levy for the school general fund. It might be argued, of course, that the 15 mill ceiling is too low anyway, but if this is the case it ought to be made explicit. In any case, uncertainties about future claims and appropriations cannot have served as the best inducement to school reorganization. Even where school reorganization has been successfully undertaken, if decisions about increases in education expenditures are constrained by real or imagined tax inequities between the farm and non-farm population, uncertainties by decision-makers about the future course of appropriations and total claims may act to keep expenditures below what is generally regarded as desirable. An increase in educational expenditures in a given time period may or may not be partially financed by state funds.

Needs and fiscal capacity. The agricultural land tax credit is related to need (variations in cost) if it costs more to educate

students in predominantly agricultural communities than in urban communities. Per unit cost may diminish with a consolidation of rural and urban communities but, nevertheless, per unit cost may still be greater in predominantly agricultural districts.

The aid is inversely related to fiscal capacity if rural property is less of an index of fiscal capacity than urban property. In general, this is the case. That is, in general, more property is associated with a given level of farm income than with the same income of urban dwellers. It is quite possible that per capita property values in a predominantly agricultural community are higher than the per capita property values of urban communities, and at the same time for per capita income in agricultural communities to be lower.

The distribution of the credit among rural communities may be directly or inversely related to fiscal capacity. Because the credit is equal to assessed valuation times the millage rate in excess of 15 mills (for the general fund), wealthier agricultural communities would have a higher assessed valuation than poorer communities and would therefore receive more credit for a given millage rate. On the other hand, the lower property values of poorer communities may have a higher millage rate to finance a given level of education. The product of the millage rate over 15 mills and assessed valuation could conceivably be the same in both communities.

The Homestead Credit

Description and rationale. The homestead credit is equal to an amount not to exceed 25 mills on the assessed valuation of eligible property up to \$2,500. The annual appropriation to finance the homestead credit is currently \$30.7 million.

The original purpose of the homestead credit was to give property tax relief to homeowners who had great difficulty in paying their taxes during the depression of the 1930's. The rationale may still be to give homeowners property tax relief, in which case it must be assumed that the state tax system is in some way superior to the property tax. Proponents of the credit have also argued that it promotes home ownership, and that this in turn stimulates the construction industry and expands the tax base. It is highly questionable that the credit has this effect when the amount of credit (the maximum is \$62.50 per year) is compared with the many other factors affecting the choice to rent or purchase a home. Even if home ownership is encouraged, the construction of rental dwellings would fall (or increase at a slower rate) and the net effect of the credit on total construction would be uncertain.

The homestead credit does reduce the regressivity of the property tax. Once the maximum credit is reached, the ratio of credit received to the value of property declines as the value of property rises. However, if the property tax

is shifted from landlords to tenants, the homestead credit benefits the homeowner at the expense of the people who rent. In this case, tenants receive no direct benefit from the credit, and they must pay higher state taxes or forego some government services in order to finance the credit.

Performance levels, need, and fiscal capacity. The homestead credit is obviously not intended to raise local performance levels. Furthermore, the homestead credit is not explicitly related to need. The needs of communities which have relatively more people who rent may be as great or greater than communities with relatively more homeowners.

Whether the aid is related to fiscal capacity depends on a number of considerations. On the one hand, poorer communities are likely to have fewer homeowners than wealthier communities and would, therefore, receive less aid than wealthier communities. Furthermore, the distribution of the aid depends on disparities in the ratio of assessed valuations to market values, differences in the distribution of the value of home ownership among households, and differences in the amount of home ownership relative to renting. The first situation is obvious--the lower is the assessed valuation, the less credit a community receives (so long as the assessed valuation on some homes is \$2,500). This case is not likely since

a community can raise the assessed valuation and qualify for more credit, and if the community wants to avoid higher taxes, the millage rate can be reduced. In the second case, a community with a more even distribution of the value of home ownership would be more likely to receive more credit than a community with a very lopsided distribution. Where distribution of ownership is quite uneven, fewer homes would qualify for the maximum credit. With respect to the third situation, there is likely to be more renting in highly congested urban areas in contrast, say, to suburbs.

The Distribution of Liquor Store Sales Receipts

Five per cent of gross liquor store sales is allocated to each incorporated town or city in the proportion that its population bears to the total population in towns and cities.

The distribution of this portion of liquor store sales probably meets a need criterion to some extent. Expenditure needs are some function of population, which is the basis for the distribution of liquor store profits. However, where population shifts are occurring, need criteria become more complex. Liquor store aid follows the population, but the increased need of communities receiving the population may be no greater, up to a point, than the increased per unit cost of providing public services in the declining communities.

The formula for distributing liquor sales is probably such that as per capita income rises, per capita aid falls. Since the

aid is based on the population in towns and cities, and population and per capita income are higher in more urbanized counties, aid will be positively associated with income.

The state also allocates five per cent of liquor store sales to partially reimburse local governments for the exemption of veterans from the local property tax, up to specified amounts. Since many veterans live in urban areas, one would expect higher income communities to receive, on the average, relatively more property tax relief than poorer communities.

It should be pointed out that this form of aid discriminates against veterans who rent. If it is desirable to compensate veterans for military service, it is curious that only veterans who own property are rewarded.

Highways

The principal source of state highway revenues is the Road Use Tax Fund. This fund consists of receipts from the registration of motor vehicles, the motor vehicle fuel tax, license fees, ten per cent of the general sales tax, and the use tax on motor vehicles, trailers, and motor vehicle accessories and equipment.

Forty-seven per cent of the Road Use Tax Fund is allocated to the primary road fund, 30 per cent to the secondary road fund of

counties, 10 per cent to farm-to-market roads, and 13 per cent to cities and towns. In addition, the 61st General Assembly increased the motor vehicle fuel tax by one cent per gallon (gasoline and diesel fuel), and the funds from this source are allocated exclusively to the primary road fund. This will increase the absolute and relative share of the state government's own sources of total highway revenues allocated to the primary road fund, and reduce the per cent (but not the absolute amount) allocated to counties and cities.

As it was pointed out above, a highway fiscal study by the Public Administration Service in 1960 recommended that a higher relative share of revenue be allocated to the state and cities, and towns, and a lower relative share be allocated to counties. It was recommended that 55 per cent be allocated to the state, 30 per cent to the counties, and 15 per cent to cities and towns. At the time this recommendation compared with a 42-50-8 per cent distribution of the Road Use Tax Fund to the state, counties, cities, and towns, respectively, and a 51-42-7 per cent distribution if account is taken of the then special tax of 2 cents per gallon on motor vehicle fuel. Funds from the special 2-cent tax were allocated to the primary road fund.

Of the funds which are allocated to the counties, 60 per cent of the secondary road allocation is distributed in the proportion that the needs of the county bear to the total needs

of the state as determined by the Automotive Safety Foundation.¹ The same formula applies to the allocation of funds to farm-to-market roads. The remaining 40 per cent is based upon the ratio of the county's area to the total area of the state. Area per se, of course, does not account for variations in cost which are caused by travel, type of use, terrain, etc., and in that sense is not related to needs. The distribution formula does not explicitly take fiscal capacity into account, although highway aid to counties does in fact favor lower income counties. This is not the case with street aid to towns and cities.

Because highway aid is not tied to local expenditures, this form of aid does not provide localities with an incentive to increase highway expenditures.

Local-State Revenue Flows

Up to this point the analysis of inter-governmental revenue flows has been confined to revenue flows from the state to the local governments. However, a substantial sum of funds flows from the local governments to the state government. In 1964, this sum amounted to \$25.5 million. Of this, local support for

¹The Automotive Safety Foundation conducted an engineering needs study of Iowa's highways at the same time the Public Services Administration conducted a study of highway financing.

public welfare accounted for \$5.4 million, support for health and hospitals totaled \$13.5 million, and support for highways amounted to \$6 million.¹

In the first part of this study it was argued that two ways in which state assistance could be rendered to local governments was by (1) transferring certain government functions to the state government, or (2) transferring state funds to local governments. In the case of public welfare and mental hospitals, Iowa has chosen the first alternative. That is, the state government has the responsibility for administering the welfare program and mental hospitals. However, the state does not assume complete responsibility for financing these programs.²

Since the care of the mentally ill and indigent is apparently a state-wide responsibility, it is curious that the state government does not assume complete responsibility for financing this activity. This is particularly critical given the superior tax sources of the state government. Further, if one of the functions of welfare programs is to redistribute income, the use of matching funds, where

¹United States Department of Commerce, Governmental Finances, 1964.

²The state's welfare program consists of medical aid to the aged, old age assistance, Indian relief, aid to the blind, aid to dependent children, aid to the disabled, child welfare and emergency relief. The latter five require contributions from the counties. Contributions from the counties in fiscal 1965 for these purposes amounted to \$6 million. This compares to \$19.8 million appropriated by the state and federal funds of \$38.8 million.

this is provided for, defeats, in part, this objective. The idea may be to make localities responsible for part of their welfare needs, but if this is the case it must be assumed that the payment of state taxes by localities to finance the program is not a sufficient demonstration of responsibility. This is a questionable assertion.

More of a case can be made for the use of local taxes to finance part of the highway program. If the state can administer highway programs, or at least some highway programs, more efficiently than local governments, there is no reason why owners whose properties benefit from highways should not pay for their support.

The Redistributive Effects of State Aid

State aid will be considered as redistributive if per capita aid increases to counties when the gap between needs and fiscal capacity increase. We have seen above that in Iowa the indices of need and fiscal capacity are unrelated in some cases and tend to be inversely related in others. This means that the gap between the indices of need and fiscal capacity rises as incomes fall, and therefore aid which is redistributive with respect to income (i.e., per capita aid rises as incomes fall) will also tend to be redistributive with respect to the gap between the indices needs and fiscal capacity. Aid which is directly related to income will be called regressive.

In order to determine whether various state aid programs are redistributive or regressive, correlation coefficients for aid and median family income were obtained. These are shown in Table 16.

The agricultural land tax credit and the secondary road aid are highly redistributive. That is, as income falls, per capita aid rises. The agricultural land tax credit is redistributive because rural counties, which receive relatively more credit, are generally poorer. The secondary road aid is redistributive because much of the aid is allocated on the basis of area. The area of the counties does not differ significantly so that each county would receive about the same amount of total aid (or that portion which is based on area). As population falls, therefore, per capita aid will rise. However, the lower population counties are also low per capita income areas. The correlation between population density and median family income is .67.

The correlation between street aid and median family income is .84. This is because the more urban counties, which receive relatively more of this aid, are also higher income counties.

There is hardly any correlation between school aid¹ and median family income, and a low negative correlation between school aid and per capita personal income. In any case, the low correlation

¹The correlation between school aid by county and other variables may be subject to some error since aid was assigned to the primary county of a school district straddling two counties.

Table 16
 SIMPLE CORRELATION COEFFICIENTS
 FOR AID TO COUNTIES AND INDICES OF FISCAL CAPACITY

Aid (1962)	Median family income (1960)	Per capita personal income (1962)	Per capita market property values (1962)	Total amounts of aid or payment (millions \$)
Agricultural land tax credit	-.73	-.40	.54	11.3
Homestead credit	.28	.21	.07	29.2
School aid	-.05	-.34	-.05	29.0
Secondary road aid	-.87	-.61	.18	33.1
Street aid	.84	.62	-.32	12.4
Liquor store sales allocations	.84	.62	-.29	2.2
Military credit	.35	.38	.12	2.3
Welfare payments	-.31	-.43	-.43	17.9
Total aid	-.76	-.63	.04	137.4
Total aid minus welfare payments	-.82	-.60	.25	119.5
Welfare collections from counties	.06	-.13	-.38	4.0

or negative relationship can be attributed to the fact that most aid is allocated on a per pupil basis and there is a lower proportion of the population enrolled in public schools in the more urbanized, wealthier counties. The reason for this is not that there are fewer school-age children in higher income counties, but that there is relatively more enrollment in private schools in the higher income counties. While the correlation coefficients between private enrollment and income is quite low, this partially explains why there is a low or negative correlation between income and school aid.

Aid to towns and cities for streets and the allocation of 5 per cent of liquor store sales to towns and cities are regressive, i.e., as incomes rise per capita aid rises. The correlation coefficients are quite high. This relationship is explained by the fact that these aids are allocated on the basis of population in towns and cities. Per capita aid in rural areas, therefore, would be smaller, as is income.

The homestead credit and military credit are somewhat regressive, as herein defined. There are apparently more homeowners and veterans living in more urbanized, wealthier counties.

Although welfare is not part of the aid program, welfare payments by county are included here to give the reader an idea of the effects of this program. Welfare payments are redistributive, but the correlation coefficient is not high. There is virtually no correlation

between welfare collections (matching funds) from counties and income.¹ This means that on a per capita basis the average lower income counties raise about as much funds for welfare purposes as higher income counties.

Total aid payments, whether welfare payments are included or not, are redistributive. This is true not only for 1962, but for 1960 and 1961., indicating that the pattern in 1962 is not accidental.

¹It is not inconsistent for per capita welfare collections (matching funds) from counties not to be correlated with income, and yet have welfare payments to counties tend to rise as incomes fall. The largest categories of aid which a (low income) county receives may not be the ones which require matching funds. A more detailed breakdown of welfare payments would be required to confirm this.