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ABSTRACT

This study discusses whether two tax programs instituted by local communities in Michigan to generate local economic activity have adversely affected local public elementary and secondary school financing. Analysis of the effects on school funding of The Plant Rehabilitation and Industrial Development Law of 1974 and its expansion in Act 255 of the Public Acts of 1978 is made difficult, according to the author, by inconclusive evidence as to the effectiveness of tax abatements in inducing growth of the tax base, and by the lack of an operational definition of what constitutes "impairment" of financial soundness. A general analysis of the Michigan Operating Aid Formula and of the situation for nine Kalamazoo County school districts indicates that while tax abatements do not appear at present to have impaired the financial soundness of most school districts, in the long run the question of impairment hinges on the state aid formula reflecting the increasing costs of public services. Continued reliance on the state aid formula to forestall impairment is, the author concludes, a poor substitute for a rational policy on the use of tax exemptions. (JBM)

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Foreword

The Plant Rehabilitation and Industrial Development Districts Law of 1974 permits local communities in the state of Michigan to offer property tax abatements as inducements for industry to locate there. This legislation also recognizes the fiscal interdependency between a municipality and its school district as they both utilize the same tax base. Whether the granting of a tax abatement impairs the financing of local public education is a most difficult question, however, because there are a number of complicating factors.

Because the question of impairment is likely to grow in importance as financial pressures on both municipality and school district increase, the Institute is reprinting this study, which originally appeared as an article in *Business Conditions in the Kalamazoo Area*. In this study, Dr. Wendling analyzes the interaction among the warranted and unwarranted awarding of tax abatements, the formula for school operating aid from the state and alternate concepts of impairment. It is published with the hope that the analysis in the paper will assist local policymakers to assess the ramifications of their actions on other taxing units.

Facts and observations expressed in this paper are the sole responsibility of the author and do not necessarily represent positions of the W. E. Upjohn Institute for Employment Research.

E. Earl Wright
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Kalamazoo, Michigan
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Executive Summary

Any action that a municipal government takes that affects either the size of the property tax base or the flow of revenues from it is likely to affect the financing of local public education. The framers of the Michigan legislation permitting local communities to award tax abatements to new industrial developments and renovations of existing facilities recognized this interrelationship. They instructed governmental units awarding abatements to determine whether their action was "impairing the financial soundness of a taxing unit" (Section 207.559, Compiled Laws of Michigan). Local governments must carry out this fiduciary responsibility, however, even though the issue is complicated by (a) inconclusive evidence on the influence of tax abatements on the behavior of business and (b) the lack of an operational definition of impairment of financing local public education.

Whether the ability of Michigan school districts to finance local education has been adversely affected by the granting of tax abatements depends on the property wealth of the school district and on the state formula used to allocate operating aid. Districts on formula for state aid and taxing at a rate of $30 per $1,000 state equalized value (SEV) or less do not experience a change in spending for education between the granting or withholding of a tax abatement as long as their tax effort remains the same. Based on the 1979-80 formula, spending could have varied between the abatement/no abatement alternative for districts on formula that expended a tax effort greater than 30 mills. Consequently, unwarranted use of tax abatements directly affected potential spending or potential millage reductions in these districts. A change in the formula for 1980-81 eliminated this possibility. Districts off formula are most affected by the granting of tax

breaks. Exempted property represents foregone revenue which is not compensated by the aid formula. Furthermore, since the introduction of the gross revenue deduct of categorical aid, which is not neutral across districts, those districts barely off formula are likely to be affected relatively more than those whose SEV per pupil is substantially above the formula limit.

The long-run question of impairment hinges on the state aid formula reflecting the increasing costs of public services. If it does not, districts on formula will have no recourse but to increase their tax effort to provide the same level of real services, assuming no growth of the tax base. If a large proportion of the tax base is exempted from property tax payments, increasing the tax millage on the nonexempt tax base could lead to the out-migration of firms and residents comprising the nonexempt base. Instead of real growth, the effective tax base could decline and the financial soundness of the taxing unit could be damaged. However, continued reliance on the state aid formula to forestall impairment is a poor substitute for a rational policy on the use of tax abatements.

Contents

I. Introduction

Local public school districts rely on property tax revenues to finance their operations even more than cities and counties do. Any action that other governmental units take that affects either the size of the tax base or the flow of revenues from it, is likely to affect the financing of local elementary and secondary education. Whether an action damages the local education financing structure is not inevitable, however. For instance, it is frequently asserted, though the empirical results are inconclusive, that the need for municipalities to provide a broad range of noneducation public services may crowd out education spending, the municipal overburden problem. At issue here is whether two tax programs that local communities in the state of Michigan have used to generate increased local economic activity have adversely affected the local financing of public elementary and secondary education.[1]

Both tax programs are designed to facilitate the ability of Michigan communities to compete with communities in other states for industrial and commercial developments. The Plant Rehabilitation and Industrial Development Districts Law of 1974 (PA-198) empowers local government units to establish plant rehabilitation and industrial development districts and with state approval issue certificates which exempt replacement facilities or new facilities from the general property tax for up to a 12-year period and instead subject it to an industrial facilities tax. For replacement (restored, rehabilitated) facilities the industrial facilities tax

1. The Institute currently is involved in a conceptual study of local tax programs, their effectiveness at generating growth of the tax base, community investment goals and the indirect benefits and costs on industrial and commercial developments. A number of issues that logically could be raised here are dealt with in that study in order to limit the length of this discussion.

is imposed at the same rate as the property tax, but is applied to the state equalized value of the obsolete facility in the tax year preceding the certificate. For new facilities the industrial facilities tax is calculated by applying one-half of the local property tax to the state equalized value of the new facility. Act 255 of the Public Acts of 1978 expanded the creation of rehabilitation and development districts and the issuance of tax exemption certificates to include commercial property.

The potential impact of tax abatements on the financing of local public education in the state of Michigan was recognized in the framing of PA-198. It is stated that the city, county, township or village "shall set forth a finding and determination that the granting of the industrial facilities exemption certificate . . . shall not have the effect of substantially impeding the operation of the local governmental unit or impairing the financial soundness of a taxing unit" (Section 207.559 Compiled Laws of Michigan). Since school districts are the prime competitors for the property tax dollar, conflicts have surfaced in some instances between the district and the unit of government utilizing the tax programs contending that the district's ability to raise sufficient revenues is being damaged by the granting of abatements.

This article is organized in the following order. Section II is a discussion of the efficacy of tax abatements and alternative operational definitions of "impairment." Also introduced are the concepts of inherent production technology and fiscal capacity. Both the most recent and the current state of Michigan operating aid for education formulae are presented in Section III. Both are analyzed because the implications of each are different and, as a result, school districts that may have contended that their ability to finance education was being damaged may now view abatements as less harmful. The converse also may hold. The implications of each formula are demonstrated using hypothetical

districts. The specific situation for the nine school districts in Kalamazoo County is analyzed in Section IV. Additional considerations, including the issue of equity, are raised in Section V and the conclusions are presented in the final section.

The focus of the paper is narrow. It concentrates on tax abatements, operating aid formulae, spending levels and changes in state equalized value (SEV). Factors that may be related to the question of impairment, but are not addressed, include (a) the other state funding formulae for schools and (b) other tax issues such as Headlee. Furthermore, only scant attention is paid to the potential service pressures on school districts resulting from new industrial and commercial developments, and declining enrollments.

II. What Constitutes Impairment?

Two major unknowns are associated with the question of the impact of tax abatements on local education finance. They are (a) the inconclusive evidence on the influence of tax abatements on the location and/or retention of firms and (b) the lack of an operational definition of impairment of financing local education. Perhaps these unknowns also are the basis of conflict that has emerged between those governmental units awarding tax abatements and the local school district. Furthermore, in addition to the unknowns, both parties to the conflict are facing similar cost pressures and limits to raising revenues.

One purpose of local property tax exemptions can be to alter the competitive position of a community relative to others in order to attract or retain industry and commerce. Many studies, however, have relegated local taxes to a relatively unimportant role in influencing the location of industry (Schmenner, 1980). Other studies have determined that variations in local property taxes are a factor in the selection of a community for relocating manufacturing and wholesale establishments (Wasylenko, 1980). Because the evidence is inconclusive, and in the absence of some other agreed upon community goal for the use of tax abatements, the affected taxing units are likely to criticize the awarding of abatements as not being warranted.

Impair is the term used in PA-198, but there is no operational definition of impairment as it relates to soundness of the ability to finance local public education. Actions of local governmental units are going to affect the local school district. How much must they be affected before they are impaired? Consequently, governmental units do not have a guideline they can use to monitor the impact of their actions on other taxing units.

The problem created by the lack of an operational definition becomes more apparent as several possibilities are proposed. Consider the following definition: the financial soundness of the local school district is not impaired by the granting of tax abatements as long as the school district is able to maintain the same spending level. This definition would be convenient and measurable. However, it also leads to the conclusion that impairment never takes place in the short run because tax abatements do not reduce the existing tax base. If the district maintains the same tax millage, it will be able to maintain the same level of spending. Thus, this definition is too simplistic in the short run and would suggest that no guideline is necessary.

An alternative definition could be based on the notion of adequacy of the spending level. If the district is able to spend above a predetermined "adequate" level, impairment is not an issue. It is, however, if granting tax abatements interferes with attaining this level. Not only does this necessitate determining what constitutes an adequate level, but it requires computing this for each district given that special needs of students and input prices of education resources—factors affecting the adequacy level—also vary. Furthermore, to give the definition more than theoretical meaning, some districts currently must be spending less than an adequate amount. It also may raise questions about a state aid formula allowing districts to spend less than an adequate level. Thus, although the notion of adequacy may be part of a definition, it is not operational standing alone.

A definition based on millage might be an option. This is flawed because the relationship between a change in state equalized value and a change in the tax millage is not clear-cut, and may vary over the range of equalized values (the property tax base). For instance, voters may choose to raise millage as state equalized value (SEV) per pupil increases over the range of relatively low values of SEV per pupil, but

to decrease millage as SEV per pupil increases beyond a certain level. Given the way the operating aid formula in Michigan is structured, which is discussed in the next section, the only way a district "on formula" can spend more is to raise the tax millage; an increase in the property tax base will not lead to an increase in spending.

The school district can respond to an increase in SEV per pupil by either decreasing, increasing or not changing the tax millage. Because tax abatements affect the potential increase in SEV per pupil, they also may affect the school district's choice of response regarding tax millage. To suggest that the inability to decrease tax millage is an impairment, as opposed to not being able to raise millage, requires a specific value judgment. To suggest the opposite also requires a specific value judgment. However, to suggest that both possibilities constitute impairment renders the definition superfluous because impairment of financial soundness would then be determined to occur whenever an abatement is awarded.

None of the above definitions is satisfactory. Either it is simplistic, arbitrary or subject to a series of qualifications. Each one, however, may constitute one aspect of impairment. Another factor that may be incorporated is the question of potential spending. For instance, if the tax millage remains the same, how much could the district spend for education in the absence of tax abatements relative to what it could spend after they have been granted? This also is not satisfactory as a single measure since it applies to only one subset of districts. Consequently, all of these aspects will be incorporated into the analysis of the short term impact of tax abatements on the financing of local public education.

Finally, governmental units and school districts are facing similar cost pressures and limits to raising revenues. Consequently, growth of the property tax base may be necessary for the continued provision of a constant level of public ser-

vices. The technology inherent in the production of some public services permits little improvement in productivity. The outputs of these services tend to be measured by the labor inputs and the potential to substitute capital for labor is limited (Baumol, 1967).[2] Education is one example. The output of education tends to be measured by the pupil-teacher ratio which is really an input measure. Increasing this ratio raises the output (number of students taught) of each teacher, but the quality of instruction is defined as decreasing. Because quality constant productivity improvements are very limited, the cost of providing these services will increase through time as wages rise (Baumol; Spann, 1977). Without growth of the property tax base, the same level of public services will consume a greater portion of the revenues. Revenues, however, cannot be increased simply by raising taxes on the existing base because the fiscal capacity of a community's businesses and residents is limited. Fiscal capacity is the maximum amount of revenue attainable by the taxing unit from its tax base and residents (Akin and Auten, 1976). Stated differently, fiscal capacity is the maximum tax liability that can be imposed without leading to the net out-migration of businesses and residents. It tends to be a function of the size of the property tax base (standardized

2. The actual constraint may not be in the technology of production, but in the technology of measuring output, outcomes or quality. Attempts to arrive at single measures of quality or quantity are dismissed as inadequate because schools have a variety of goals: teaching a certain amount of academic skills, socializing students, creating appropriate attitudes toward work and authority, and preparing students to enter the job market. A frequently used single measure is the achievement test score. There has been considerable controversy over its use, but it does provide a quantitative standard for the outcome and change in outcome. Breakthroughs are being made in the technology of measuring education outcomes that may permit the development of productivity measures and the discarding of the pupil-teacher ratio. Researchers are determining which characteristics of teachers, administrators and schools lead to improvements in achievement for students with specific attributes and home backgrounds. Examples include: (a) students whose achievement level initially was relatively low demonstrated greater improvement with less experienced teachers (Summers and Wolfe, 1977); (b) male teachers were more effective than females, with stronger impact in math than in reading (Murnane, 1975); and (c) reading score improvement was greater using the linguistic basal approach than other techniques (Summers, 1979).

for residents or pupils), the base's distribution among industrial, commercial and residential sectors and the income of residents. Thus, units of government will attempt to generate growth of the tax base and to increase local economic activity.

III. A General Analysis of the Michigan Operating Aid Formula

The basic formula for distributing operating school aid in Michigan is a combination of minimum level foundation and district power equalizing plans. The details of the formula have changed for the 1980-81 school year relative to what they were for the 1979-80 school year. Both are presented because each highlights different aspects of whether districts have been harmed by the granting of tax abatements and under what conditions. Mathematically, operating aid to the district for each student enrolled (member) in the school district is:

State Operating Aid Per Pupil $= X + M(P-P_i)$

where X is per pupil foundation level of the aid formula,

M is the number of mills of tax effort by the district,

P is the power of each mill of tax effort guaranteed by the state, and

P_i is the power of each mill of tax effort in the particular school district.

The foundation is a fixed amount per pupil which serves as the basis for the formula and is not dependent on local tax effort. However, it is not a flat grant to each district irrespective of property wealth since the power equalizing component can erase the foundation level of support. The district power equalizing element attempts to compensate for differences in property tax bases across communities by equalizing the revenue yield (power) of each unit of tax effort (millage). The power of the tax effort indicates the revenue generated from the property tax base by one mill of tax effort.

Districts with relatively low levels of property wealth per pupil receive relatively greater amounts of state operating aid whereas districts above a certain level receive no operating aid—they are "off formula." The state share of operating expenditures for local public education has been approximately 38 percent. Local district revenues provide approximately 56 percent of the operating funds and the federal share is 6 percent.

The district power equalizing formula has a number of implications for those districts "on formula." First, once a district's voters select a tax millage, variations in SEV per pupil will not result in a change in spending per pupil in that district. Second, the only way a district on formula can change the level of spending is to adjust its tax effort. Third, this formula provides an incentive for a district to levy a higher tax millage because the amount of state aid received per pupil by the district is greater as the tax millage is increased, holding all other things constant. Finally, an increase in the number of students to be served by the school district, assuming that SEV and tax millage remain the same, will result in greater aid per pupil in addition to increased aid due to the additional pupils.

These features can be clarified by referring to Table I, which lists the level of state aid per student, local revenues per student and spending per pupil (for operating purposes) for districts whose SEV per pupil ranges from $20,000 to $75,000.[3] The formula utilized is that for the 1979-80 school year. During that school year, the foundation support was $325 per student. The state equalized the revenue yield at $43.00 for each tax mill levied up to 30 and at $21.50 for each mill beyond 30. Districts that levied a tax of $30 per

3. The equalizing nature of the formula is demonstrated by the proportion of spending derived from state aid decreasing from 62.85 percent to 7.12 percent as the SEV increases from $20,000 to $50,000.

Table I
State Operating Aid, Local Revenues and Total Spending per Pupil for the 1979-80 School Year for Hypothetical School Districts in Michigan

State equalized value per pupil	State operating aid per pupil	Local revenue per pupil	Total spending (operating) per pupil	Percent aid of spending
$20,000	$1,015	$ 600	$1,615	62.85
25,000	865	750	1,615	53.56
30,000	715	900	1,615	44.27
35,000	565	1,050	1,615	34.98
40,000	415	1,200	1,615	25.70
43,000	325	1,290	1,615	20.12
45,000	265	1,350	1,615	16.41
50,000	115	1,500	1,615	7.12
53,833	0	1,615	1,615	.00
55,000	0	1,650	1,650	.00
60,000	0	1,800	1,800	.00
65,000	0	1,950	1,950	.00
70,000	0	2,100	2,100	.00
75,000	0	2,250	2,250	.00

NOTE: Based on the following assumptions:

Tax Rate = $30 per $1,000 SEVPP

Operating Aid Formula = $325 + .030($43,000 - $SEVPP_i$)

Local Revenue = .030($SEVPP_i$)

$SEVPP_i$ = State equalized value per pupil in the i^{th} district

$1,000 of state equalized value—the measure of the property tax base—and whose SEV per pupil was less than $53,833 received some state operating aid and were able to spend $1,615 per child for operating purposes through the combination of state aid and local revenues. School districts with SEV equal to $43,000 per pupil received state aid of $325 per enrolled pupil.

Consider the first implication: assuming a specific tax millage, variations in SEV per pupil simply alter the ratio of state aid to local revenues in the composition of the level of spending. Initially consider the district whose SEV per pupil is $35,000. It is levying a millage of 30 mills per $1,000 of SEV per pupil. Local revenue is $1,050 per pupil and state aid is $565 per pupil. State aid per pupil is computed by adding $325 (the foundation level) and the product of the millage times the difference between the state's "guaranteed" tax base ($43,000) and the local district's tax base, both of which are measured on a per pupil basis. Total spending from these two sources is $1,615 per pupil. If SEV per pupil decreases to $30,000 and the tax millage remains the same, operating aid per pupil increases to $715, local revenue decreases to $900 per pupil, but spending remains constant. Aid as a percent of spending increases from 34.98 percent to 44.27 percent. Thus, once the voters of a district, which is on formula, have selected a tax millage, variations in SEV per pupil will not result in a change in spending per pupil.

The second feature follows directly from the formula: adjustments in the tax effort can change the base amount of spending that the formula assures. If in the operating aid formula listed at the bottom of the table, the lower millage of .025 is substituted for .030, and the SEV per pupil is $35,000, the level of spending will change. This district will receive less, only $525 in operating aid ($325 + $200), will raise less, only $875 in local revenues, and will spend less,

only $1,400 per pupil. It has been determined from the previous case that if the tax millage is 30 mills, the spending level is $1,615. Thus, the only way a district on formula can adjust its level of spending is to change its tax effort. The incentive to level a greater millage follows directly from the previous examples. Recall that if the tax millage is 25 mills and SEV per pupil is $35,000, operating aid per pupil is $525 per pupil; but aid increases to $565 per pupil if the tax effort is 30 mills.

Finally, consider the implication concerning an increase in the number of students. Initially, assume that SEV is $40 million and that there are 1,000 pupils. SEV per pupil is $40,000 and, given the conditions listed in Table I, operating aid per pupil is $415. If 183 pupils are added to the membership roster, and SEV remains the same, the SEV *per pupil* of the district decreases approximately to $35,000. Operating aid increases to $565 per pupil for 1,183 pupils whereas previously the district received $415 per pupil for 1,000 students. The converse holds if membership declines; operating aid per pupil is reduced and is received for fewer pupils.

Table I also will be used to analyze whether tax abatements have impaired financing of local education. Throughout this analysis two caveats hold. First, it is assumed that school districts are financially sound at the start of the time period under consideration. Second, the findings apply only to one time period, the current one. No attempt is made in this section to determine what the long-run impact of granting a tax abatement will be nor what is the cumulative influence of all the abatements that have been granted previously.

Initially consider a district with SEV equal to $35,000 per pupil. It receives state aid of $565, generates $1,050 from local revenues and spends $1,615 per pupil. Assume that a

new industrial development is contemplated that could add $10,000 to SEV per pupil. If no abatement is granted and the firm decides to go through with the project, SEV increases to $45,000 per pupil, state aid per pupil decreases to $265, but local revenue per pupil increases to $1,350. Total spending is $1,615 per pupil. However, as an inducement, the local community offers the firm contemplating the development an abatement that establishes an industrial development district and sets the taxable value at one-half of its equalized value. The project then adds only $5,000 per pupil to the effective SEV for the school district, SEV per pupil increases to $40,000, state aid per pupil is $415, local revenue per pupil is $1,200 and total spending is $1,615 per pupil.[4] Thus, in this situation any increase in SEV is matched by a decline in state aid, with the result that spending remains the same.

Next, consider the case of a district that is off formula, i.e., its SEV per pupil is greater than $53,833. Assume that its SEV is $55,000 per pupil, it is levying a tax of $30 per $1,000 of SEV and that a firm is contemplating a development that would add $10,000 per pupil to SEV, $5,000 per pupil if an abatement is granted. Using Table I again, if the development takes place and no abatement is granted, SEV increases to $65,000 per pupil and $1,950 of local revenues per pupil are raised from the tax effort. Granting an abatement reduces the potential increase to $60,000 SEV per pupil, which generates local revenues of $1,800 per pupil for education. If the development does not take place, local revenues raised per pupil remain at $1,650.

4. In fact, an industrial facilities tax is levied on the development. Proceeds from the tax are turned over to the district in relation to its usual tax levy. The result is identical to an increase in SEV for school taxing purposes. These values are used only for analytical convenience. A project would have to have a state equalized value of $140 million in order to add $10,000 per pupil in Kalamazoo. For Schoolcraft, the project would need to add $8.9 million to the state equalized value.

Granting a tax abatement has no impact in this time period on the district "on formula." Assuming tax effort would not have changed, spending remains the same. The district "off formula" potentially could have increased spending by a substantial amount if the abatement is not granted, the development occurs and it maintains the same tax effort. Conversely, if the abatement is the key factor, the district could increase spending or reduce tax effort as a result of it being awarded. Thus, although there does not appear to be a conclusive argument for impairment, the importance of the effectiveness of tax abatements in answering this question becomes more evident.

The question of whether $1,615, the base amount, is an adequate level of spending for operating purposes also is a factor. If the base level is recognized as adequate to provide a reasonable quality of education, then the issuance of an abatement could not be considered to impair the ability to finance education in this time period. If $1,615 is not an adequate level, then impairment becomes more of a reality whenever an abatement is granted that does not meet an agreed upon community goal. It could be argued that since the state formula does not fully equalize millage above .030, the state formula implicitly recognized $1,615 as an adequate level of spending for operating purposes. However, since the formula does not require a minimum effort of 30 mills, it could be suggested that the state formula makes no statement about minimum or adequate levels of spending.

A new industrial or commercial development also has implications for the supply of public services. The investment may lead to the in-migration of households with additional children that need to be served by the public schools. The resulting cost pressures could vary among school districts. For instance, school districts with excess capacity due to declining enrollments may be able to operate more efficiently with additional pupils. Although total cost will increase, the

average cost of each student may drop in such a district. Other districts that are operating at capacity may be strained by an influx of students. Thus, although the state grants operating aid for each student, the additional cost of serving new students could vary markedly across districts.

An important feature of the 1979-80 operating aid formula is that the power of the tax effort was equalized fully only to 30 mills. Millage above this level was equalized at one-half the rate. Table II addresses the impairment issue for districts whose tax effort was greater than 30 mills. Consider the district whose SEV per pupil is $30,000 and whose millage is .040. As indicated in Table II, the district receives $780 in aid, provides $1,200 of its own revenue for each pupil and spends $1,980 per pupil. Assume the choice used earlier: a development adding $10,000 to SEV per pupil with no abatement or $5,000 to SEV per pupil with a tax abatement. Although the district is on formula, the outcomes differ. Under the former case, aid is reduced to $430 per pupil, local revenue increases to $1,600 and total spending per pupil is $2,030. If a tax abatement is granted, state aid is relatively greater, local revenue is relatively less, but total spending per child is $2,005, which is less than in the no abatement situation. Thus, districts exerting a tax effort greater than 30 mills are affected by the granting of abatements because the difference between the abatement/no abatement action, assuming the development takes place, is not fully compensated. Therefore, these districts have a greater interest in abatements being offered only when they are the marginal (critical) determinant. For districts off formula, the case is analogous to the one discussed in relation to Table I.

According to PA-198 and PA-255, tax exemptions also can be given to existing firms that revitalize and/or expand existing structures to make them more viable economically. Tax abatements in this instance freeze property taxes at their pre-renovation level. Is there a differential impact when the

Table II
State Operating Aid, Local Revenues and Total Spending
per Pupil for the 1979-80 School Year
for Hypothetical School Districts in Michigan

State equalized value per pupil	State operating aid per pupil	Local revenue per pupil	Total spending (operating) per pupil	Percent aid of spending
$20,000	$1,130	$ 800	$1,930	58.55
25,000	955	1,000	1,955	48.85
30,000	780	1,200	1,980	39.39
35,000	605	1,400	2,005	30.17
40,000	430	1,600	2,030	21.18
43,000	325	1,720	2,045	15.89
45,000	255	1,800	2,055	12.41
50,000	80	2,000	2,080	3.85
52,286	0	2,091	2,091	.00
55,000	0	2,200	2,200	.00
60,000	0	2,400	2,400	.00
65,000	0	2,600	2,600	.00
70,000	0	2,800	2,800	.00
75,000	0	3,000	3,000	.00

NOTE: Based on the following assumptions:

Tax Rate = $40 per $1,000 SEVPP

Operating Aid Formula = $325 + .030($43,000 - $SEVPP_i$) + (.050)(.010)($43,000 - $SEVPP_i$)

Local Revenue = .040($SEVPP_i$)

$SEVPP_i$ = State equalized value per pupil in the i^{th} district

major thrust of tax policy is toward existing structures? For purposes of discussion, assume that a community establishes a rehabilitation zone in the central city and all rehabilitations in that area automatically qualify for a tax abatement. Furthermore, assume that the district is taxing itself at a rate of $40 per $1,000 SEV.

From Table II it can be seen that this case differs somewhat from the one in which there is a new development. Assume that the district is at $30,000 SEV per pupil and that planned rehabilitations could raise it to $40,000. Instead, all planned rehabilitations receive tax abatements which freeze the effective tax base for school districts at the previous level. Although state aid does not decrease to $430 from $780 per pupil, total spending does not increase either. What is missing is that halfway point: the district gets no loaf instead of a half loaf. However, the service pressure on the school district is likely to be less than in the new development case because the potential for families moving in and, therefore, additional school age children needing to be served, probably is much less.

The state of Michigan has altered its school operating aid formula for the 1980-81 school year. Two major changes have been made. First, the formula fully equalizes the power of the tax effort for every mill levied, including those over 30. Second, if the district's SEV per pupil is greater than the no aid level, $58,133, the district incurs a reduction in categorical aid received under a number of other programs.[5] Thus, a link has been established between the operating aid and categorical aid formulae. The excess local revenue, which is called the gross revenue deduct, is used to calculate the amount that is deducted from the district's receipts for

5. Categorical aid refers to state aid that is designated for specific categories of programs or recipients. Examples could include aid for vocational education, special education, and, in some instances, transportation. This differs from operating aid which can be used as the district wishes for any operational purposes.

several categorical aid programs, but the reduction is not greater than 50 percent of the total categorical aid received through these programs. Other changes to the formula include increasing (a) the foundation aid to $357 per pupil and (b) the power of each tax mill to $46.24 per pupil. As a result, the base figure expenditure per pupil, assuming a millage of .030, has risen to $1,744.20, compared to $1,615 under the prior formula.

The operation of the gross revenue deduct is displayed in Table III. Consider the district whose SEV per pupil is $60,000. At a millage of .030, $1,800 per pupil is raised locally. Given that the base spending figure is $1,744.20, the potential revenue deduct is $55.80 per pupil. If the district receives $200 per pupil in categorical aid under the applicable programs, aid under these categoricals can be reduced by the full amount of the revenue deduct, $55.80 per pupil. However, if the district's SEV per pupil is $70,000, yielding revenue of $2,100 per pupil or $355.80 above the base amount, the categorical aid of $200 is reduced (recaptured) by only $100 per pupil. The reduction may not exceed 50 percent of the affected categorical aid. It should be noted that the $200 per pupil example used here for categorical aid may not bear any relation to the actual aid amounts received for these programs.[6]

6. The use of per pupil figures to reflect the potential recapture of categorical aid understates the magnitude of the effect. For example, a district with 3,000 students and a gross revenue deduct of $55.80 per pupil would lose over $167,000 in categorical aid. Furthermore, the local district involvement in categorical programs may vary according to the size of the district. Larger districts may have a sufficient number of pupils in the special programs to make it feasible to run their own programs rather than through the intermediate districts. Thus, a larger district may spend proportionately more of its own funds for its own program than a smaller district even though they have the same SEV per pupil. Given that state aid to these programs has been approximately $.30 of each dollar, the recapture results in larger districts spending proportionately a still greater amount on these programs than smaller districts. Thus, the impact may not be neutral across districts of equal SEV per pupil.

Table III

State Aid for Education and Local Revenue Given the Operating Aid Formula for the 1980-81 School Year for Hypothetical School Districts in Michigan

State equalized value per pupil	State operating aid per pupil	Local revenue per pupil	Total spending (operating) per pupil	Percent aid of spending	Categorical aid per pupil	Revenue deduct per pupil	Aid recaptured by state per pupil
$20,000	$1,144.20	$ 600	$1,744.20	65.60	$200	$ 0	$ 0
25,000	994.20	750	1,744.20	57.00	200	0	0
30,000	844.20	900	1,744.20	48.40	200	0	0
35,000	694.20	1,050	1,744.20	39.80	200	0	0
40,000	544.20	1,200	1,744.20	31.20	200	0	0
45,000	394.20	1,350	1,744.20	22.60	200	0	0
46,240	357.00	1,387.20	1,744.20	20.47	200	0	0
50,000	244.20	1,500	1,744.20	14.00	200	0	0
55,000	94.20	1,650	1,744.20	5.40	200	0	0
58,133	0.00	1,744	1,744.20	.00	200	0	0
60,000	0.00	1,800	1,800.00	.00	200	55.80	55.80
65,000	0.00	1,950	1,950.00	.00	200	205.80	100.00
70,000	0.00	2,100	2,100.00	.00	200	355.80	100.00

NOTE: Based on the following assumptions:

Tax Rate = $30 per $1,000 SEVPP

Operating Aid Formula = $357 + (.030)($46,240 - $SEVPP_i$)

Gross Revenue Deduct (GRD) = If $SEVPP_i > \$58,333$, then $GRD = (0.30)(SEVPP_i - \$58,333) + (.50)(CA)$

$SEVPP_i$ = State equalized value per pupil in the i^{th} district

CA = Categorical Aid

What is the impact of local tax abatement programs on the disbursement of state aid in accordance with the new formula? Referring back to Table III, consider the district whose SEV per pupil is $55,000 and levies a tax millage of .030. Total spending per pupil is $1,744.20, including $94.20 in state aid. Assume that a new development is considering locating in the community that will raise the SEV to $65,000 per pupil if no abatement is granted or to $60,000 with a tax abatement. In either case the district will go off formula, but it now will be liable for a revenue deduct against the categorical aid. If no abatement is granted, and the tax effort does not change, local revenues will increase to $1,950 per pupil but the district loses half its categorical aid, the reduction amounting to $100 per pupil. Assuming that $100 of operating revenues per pupil goes to make up the loss in categorical aid; effective spending is $1,850 per pupil. If the tax abatement is granted, the categorical aid reduction of $55.80 per pupil will reduce effective local spending per pupil to $1,744.20, the same as the base figure. Thus, even though the abatement will increase the tax base, spending per pupil will not change.

The district described above—one that is almost off formula—faces an unusual alternative: no increase in the tax power if the abatement is the marginal determinant to a potential development and it is not granted; no increase if the abatement is granted; and a considerable increase in the power of the tax effort if no abatement is granted and it is not the marginal determinant. Districts with relatively greater property wealth still face the earlier no loaf, half loaf, full loaf alternative because of the constraint placed on the amount of the aid recapture.

Districts whose property wealth (SEV) per pupil is less than $58,133 per pupil could be relatively indifferent between the granting or not granting of a tax abatement because any gain in the tax base is matched by a loss in state

aid, irrespective of the millage levied. This differs from the previous formula in which districts levying a millage above .030 were not fully equalized and therefore, directly affected by the awarding of abatements in nonmarginal situations. Those districts facing the biggest dilemma given the new formula are those just off formula. Although they are still guaranteed the base amount, they are not made relatively better off by additions to the tax base, whereas those substantially above that level find that they can benefit from either a small or large addition to SEV. Thus, the administration of local tax policy by the municipality is likely to be most controversial and difficult when the local school district is just off formula.

IV. The Situation for Kalamazoo County School Districts

School districts in Kalamazoo County cover the range of hypothetical possibilities discussed in the previous section. For the 1979-80 school year, four of the nine districts levied an operating millage over 30 mills, three levied a millage substantially below 30 mills, one's millage was approximately 30 mills and only one of the districts was off formula. In 1980-81 again, only one district is off formula. The millage levied for operating purposes ranges from 24.93 to 36.30 mills. The data for school districts in Kalamazoo County are presented in Table IV.[7]

The three hypothetical cases discussed earlier can be classified as (a) districts on formula, (b) districts off formula and (c) districts on formula whose tax levy is not fully equalized. The granting of tax abatements affects each set of districts differently.

The districts of Climax-Scotts, Galesburg-Augusta, Gull Lake, Schoolcraft and Vicksburg in 1979-80 all were on formula and for the 1979-80 school year levied a millage of 30 mills or less. Therefore, in that time period, abatements that added only one-half of the increase in SEV to the property tax were fully equalized and spending for operating purposes was not affected. These districts also are on formula for the 1980-81 school year and again the new operating aid formula equalizes for the "lost" SEV.

The Comstock school district is the only one that is off the operating aid formula. Its SEV per pupil exceeds the 1980-81

7. The data presented in Table IV have been collected from the local school districts. The same set of data also was gathered from the Michigan Department of Education. In almost all cases there is some discrepancy between the data from the two sources and, as a result, this table may not be identical to one developed from state published sources.

Table IV
Data on Financing for School Districts Located in Kalamazoo County

School district	Number of students		Operating millage		State Equalized Value		State Equalized Value per student	
	1979-1980	1980-1981	1979-1980	1980-1981	1979-1980	1980-1981	1979-1980	1980-1981
Climax-Scotts ..	787	751	22.0584	29.5000	$ 27,292,359	$ 29,796,033	$34,680	$39,675
Comstock	2,747	2,728	30.5500	30.5500	164,547,307	178,418,879	59,901	65,403
Galesburg-Augusta	1,438[1]	1,412[2]	28.6128	28.8160	40,649,687	46,835,096	28,268	33,169
Gull Lake	2,812	2,758	24.7500[3]	24.9300	111,819,427	130,621,362	39,765	47,361
Kalamazoo City.	14,181	13,758	36.1000	36.3000	661,127,781	716,028,940	46,621	52,045
Parchment	1,987	1,909	31.2588	31.2588[4]	69,716,881	77,591,974	35,087	40,645
Portage	9,194	8,794	31.8600	32.2000	362,932,261	415,600,604	39,475	47,260
Schoolcraft.....	890	892	29.9960	29.3000	36,877,567	41,237,616	41,435	46,231
Vicksburg	2,782	2,686	25.5491	30.0000	97,782,655	111,456,779	35,148	41,495

SOURCE: Contacts with the offices of school districts involved.

1. Includes 50 in adult education.

2. Includes 66 in adult education.

3. 23.9400 levied.

4. 31.9 authorized.

no aid level, which is $58,133, by a relatively small amount. Therefore, it is the only district in the county subject to the gross revenue deduct. In 1980-81 the district's tax levy raises $1,998 per pupil for operating purposes. This value, however, is not equivalent to total spending per pupil because federal and state categorical aids still provide some support to the district.

The expected dollar loss in categorical aid for 1980-81 is not available at this time. Proxy figures for 1978-79 are available which indicate that the district spent $131 per pupil for "added/needed" programs and in this same year they received $109 per pupil from state sources. For purposes of discussion, assume that for 1980-81 the Comstock district was again scheduled to receive $109 per pupil in categorical aid. The excess revenue generated given the millage and SEV is $228 per pupil, of which $54.50 per pupil is subject to recapture. Therefore, additions to the SEV will not lead to a greater gross revenue deduct. Thus, this change to the method of financing schools should have no appreciable impact on the deliberations on whether to grant tax abatements in Comstock.

The districts of Kalamazoo, Parchment and Portage have been affected most by the change in the operating aid formula between the 1979-80 and 1980-81 school years. These districts have levied millage in excess of 30 mills and, as a result, during the 1979-80 school year spending for operating purposes could have differed depending on the decision to grant or not to grant an abatement. This was the case because mills in excess of 30 were equalized at one-half the power. Therefore, although these districts' financial soundness in this time period probably was not impaired, abatements granted that were not the marginal consideration or did not further some other community goal, affected the potential spending or tax millage of these districts.

The 1980-81 operating aid formula altered the equalization of tax millage above 30 mills, thereby removing this source of potential conflict. Therefore, if the criterion is used that, in the current time period, the ability to finance education has not been impaired if there is no difference in spending between the abatement/no abatement situations, eight of the nine districts have not been impaired. The one district that falls outside this criterion, Comstock, is off formula, which implies that it has greater capacity than necessary to finance education, assuming other factors are the same.

V. Other Considerations

Perhaps the most troublesome issue is the long run impairment of financing local education. Suppose the base amount per pupil is adequate in the current time period, but that the state aid formula does not keep pace with the increase in costs due to no productivity growth in future years. Districts will have no recourse but to increase their tax effort in order to finance the same level of real services in the future, assuming no growth in the tax base. However, the increase in tax will be borne primarily by residents and firms not having any property exempted. In turn, higher millage rates could cause some out-migration of firms and residents, thereby exacerbating the situation. Districts off formula must continue to rely on growth of the tax base or increased tax rates to provide the necessary revenues. The decision alternatives have not changed for units of government making abatement decisions in off-formula districts since they have not been able to rely on the formula to compensate for the potential revenues. The full impact of decisions has not been mitigated.

Earlier the concept of fiscal capacity was discussed. Fiscal capacity is the maximum revenue that can be generated by the local community from its tax base without inducing outmigration. The district power equalizing formula is designed to equalize for fiscal capacity differences. However, it is based on districts making the same tax effort, independent of the SEV. For example, if the maximum local tax effort that does not overburden the taxpayer is directly related to the property wealth per pupil of the district, the impact of the decision to grant a tax abatement differs among districts by the SEV per pupil of the district. Suppose that the maximum tax effort by a district with SEV per pupil of $20,000 is 20 mills, whereas it is 30 mills for a district with SEV per pupil

of $30,000. Under the current formula the first district would spend $1,281.80 per student and the second district would spend $1,744.20. State operating aid would be $881.80 and $844.20, respectively.

Assume the prospect of a development that would add $10,000 to SEV per pupil in the first district. The usual comparison would indicate that spending would remain at $1,281.80, but the share of state aid would decrease. If the new development increases incomes and leads to the inmigration of people having a greater taste for education, it is possible that the tax effort would increase, say to 30 mills. Total spending per pupil would then increase to $1,744.20. Thus, the district would not be indifferent between the alternatives. However, it is possible that local effort could decrease with an increase in wealth since a desired (target) level of spending could be reached with a lower millage. As indicated earlier, neither case can be considered an "impairment" because any decision rule based on millage, in the short run, requires a normative judgment.

Kleine (1979) stated that units of government granting tax abatements were distributed unevenly through the state. Specifically, PA-198 had a higher rate of usage in Southwestern Michigan than elsewhere. Since a tax abatement usually results in greater operating aid for a school district than would occur in the absence of an abatement, assuming it is not the marginal determinant, and since state operating aid tends to come out of general funds collected throughout the state, communities granting abatements may be receiving an implicit subsidy from the rest of the state.

Finally, equity also is a consideration. With respect to the public education of children, one notion of equity suggests that children should be treated equally, but it recognizes that some pupils require additional services. One method of measuring the equity of education is to examine spending

patterns. Approximately equal spending is an indication of equity, except that greater spending is required to compensate for differences in the needs of students or the prices of education resources. Thus, if this notion of equity is accepted, the analysis of whether a district's ability to finance services has been impaired must consider more than the level of spending. It is possible that although two districts spend approximately the same amount per pupil and have approximately equal SEV per pupil above the no aid level, a situation that promises no growth of the effective tax base may represent an impairment to the district that has many students requiring special services.

VI. Conclusions

Has the ability of Michigan school districts to finance local education been adversely affected by the granting of tax abatements for industrial and commercial projects according to either PA-198 or PA-255? The answer differs by school district and through time depending on the state formula used to allocate operating aid. Analysis of this issue is difficult, however, because (a) the evidence on the effectiveness of tax abatements at inducing growth of the tax base is inconclusive and (b) there is no operational definition of impairment of the financial soundness.

According to the analysis, districts on formula for state aid and taxing at a rate of $30 per $1,000 SEV or less do not experience a change in spending for education between the granting or withholding of a tax abatement. This holds as long as there is no relationship between tax effort and SEV, i.e., their tax effort remains the same. Based on the 1979-80 formula, spending did vary between the abatement/no abatement alternative for districts on formula that expended a tax effort greater than 30 mills. Potential spending per pupil was greater with a "full loaf" rather than with a "half loaf" even though both led to greater spending than "no loaf." Consequently, unwarranted use of tax abatements directly affected potential spending or potential millage reductions in these districts. A change in the formula for 1980-81 eliminated that possibility. Districts off formula are most affected, although not necessarily impaired, by the granting of tax breaks. Exempted property represents foregone revenue; but with the gross revenue deduct applicable to categorical aid in the current year, the impact is not neutral across districts. Districts barely off formula are likely to be affected relatively more than districts whose SEV per pupil is substantially above the formula limit.

It does not appear that, in the present time period, tax abatements have impaired the financial soundness of most school districts. This conclusion is based on the assumption that school districts are financially sound at the start of the time period. No attempt is made to look at the cumulative impact of previous abatements. In the long run, the question of impairment hinges on the state aid formula reflecting the increasing costs of public services. If it does not, districts on formula will have no recourse but to increase their tax effort to provide the same level of real services, assuming no growth of the tax base. Exempting a large share of the tax base from property tax payments could lead to the increased tax effort exceeding the fiscal capacity of the nonexempt tax base, which in turn would be manifested by the out-migration of firms and residents. Instead of real growth, the effective tax base would decline and the financial soundness would be adversely impacted. However, continued reliance on the state aid formula to forestall impairment is a poor substitute for a rational policy on the use of tax exemptions.

Districts off formula are a separate issue. When districts on formula are able to provide only the base amount for operating purposes, it is difficult to conceive that districts off formula (by a significant margin) have had their ability to provide education services damaged by tax abatements. However, the new state aid operating formula with the recapture of categorical aid will place a greater burden on these districts such that impairment may become an issue if tax exemptions are granted when not warranted.

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