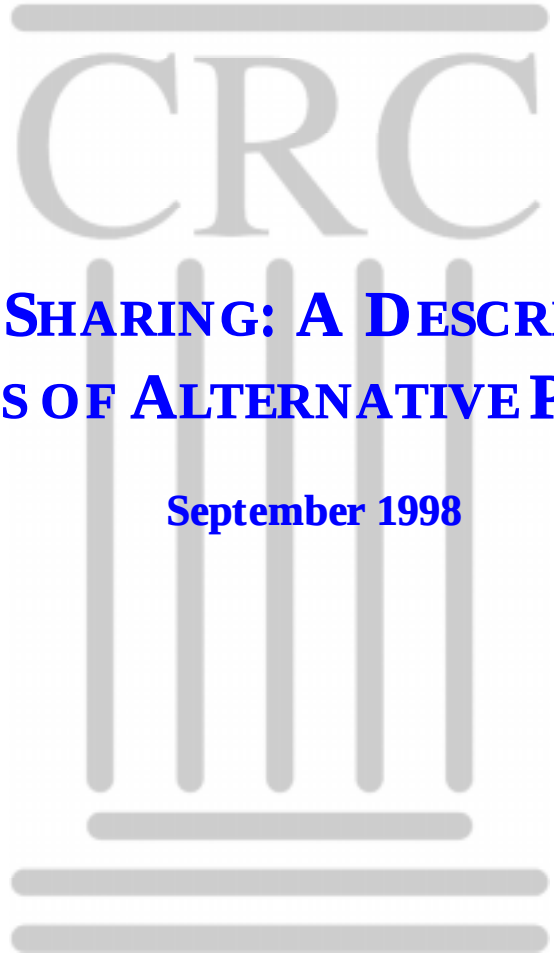

REVENUE SHARING: A DESCRIPTION AND ANALYSIS OF ALTERNATIVE PROPOSALS

September 1998

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Citizens Research Council of Michigan

http:// www.crcmich.org

38200 West Ten Mile Road, Suite 200 • Farmington Hills, Michigan 48335-2806 • (248) 474-0044 • Fax (248) 474-0090 • E-Mail: crcmich@mich.com

1502 Michigan National Tower • Lansing Michigan 48933-1738 • (517) 485-9444 • Fax (517) 485-0423 • E-Mail: crcmich_lansing@compuserve.com

REVENUE SHARING: A DESCRIPTION AND ANALYSIS OF ALTERNATIVE PROPOSALS

Two proposals to replace the revenue sharing distribution mechanism based on relative tax effort have emerged in the legislative process. Each plan uses a three-part formula with similar elements. Senate Bill 1181 has passed the Senate and is under consideration in the House. House Bill 5989 was introduced shortly before the summer recess and has not been acted on by the House.

Revenue sharing programs across the country frequently are aimed at advancing the goals of (1) reducing disparities in fiscal capacities of individual local units, (2) ensuring that adequate service levels are provided by local units, (3) recognizing differing levels of tax effort, and (4) ensuring that each unit receives some of the shared revenue.

The analysis that follows points out the similarities and differences in the two bills and some of the implications and problems inherent in one or both plans.

Inventory Reimbursement

SB 1181

The bill phases out the inventory reimbursement payments for counties over a six-year period replacing it with per capita payments phased in over the same time period.

HB 5989

The bill freezes the inventory reimbursement payments for counties at the 1997-98 level and specifies that growth in available revenues shall be distributed on a per capita payments basis beginning in 1998-99.

Comments

The inventory reimbursement payments were initially intended to compensate units for the loss of inventory from their personal property tax base when the single business tax was implemented in 1975. The payment amount is based on the 1975 inventory tax base times the current millage rate. It is unlikely that current reimbursement amounts reflect the revenue that would be yielded if current inventories were taxed.

Proposed Formulas

SB 1181

The distributions for cities, villages, and townships are based on a three-part formula. Ten percent of the total revenues to be distributed are based on yield equalization and the remaining amount, 45 percent in each case is distributed by two formulas using the variation in taxable value and weights based on the type and population size of each unit of government. The calculations are made as follows:

HB 5989

The distributions for cities, villages, and townships are based on a three-part formula. One-third of the total revenues distributed are based on each of three separate formulas. These formulas calculate variation in taxable value per capita, unit type population weights, and equalization of the yield per mill of tax levy.

Weighting Based on Variation in Taxable Value

Both plans create population weighting mechanisms based on the variation in the per capita taxable values of the cities, villages, and townships from the state average taxable value per capita.

SB 1181

A statistical measure called the standard deviation is employed to calculate the variation in taxable value per capita. The standard deviation is a commonly used statistic that measures the way individual values of a variable in a distribution of values are centered around the mean or average of all the values. The calculation of the standard deviation in the bill excludes approximately 140 units with taxable values per capita of $50,000 or more. The population weights are as follows:

Variation from State Average in Standard Deviations	Weight
Less than or equal to –2.5	1.90
More than -2.5 and less than or equal to -1.5	1.65
More than -1.5 and less than or equal to -0.5	1.40
More than -0.5 and less than or equal to -0.2	1.15
More than -0.2 and less than or equal to 0.2	1.00
More than 0.2 and less than or equal to 0.5	.85
More than 0.5 and less than or equal to 1.5	.65
More than 1.5 and less than or equal to 2.5	.35
More than 2.5	.10

HB 5989

The calculation uses the ratio of the statewide average taxable value per capita to the taxable value per capita for the individual unit. A unit with taxable value per capita below the state average receives a weight greater than one and a unit above the state average receives a weight less than one.

Comments

Both plans provide payments based on the rationale that capacity to raise revenue, as measured by taxable value per capita, should be reflected in the state's revenue sharing policy. They have the effect of reducing disparities in capacity, one of the general policy goals for revenue sharing programs. In both plans, the lower the property tax base per capita, the higher the per capita payments from the state are. However, they use different approaches and yield significantly different results for units with taxable values per capita substantially different from the state average. For example, Benton Harbor has a taxable value per capita of $1,933, less than one-tenth of the state average and would receive a weight of more than ten in HB 5989. In SB 1181, the weight would be 1.65. These differences in weights would translate to Benton Harbor receiving almost five times as large a share of the total to be distributed in HB 5989 as SB 1181. In the case of Bloomfield Hills, which has taxable value of $128,897 (more than six times the state average), the difference in shares is less than 25 percent between the two plans.

In each bill, the weighted populations are computed as follows:

Weighted Population = Actual Population x Taxable Value Variation Weight

SB 1181

The total amount to be distributed, **forty-five percent of the statutory revenues,** is divided by the state total of all individual unit weighted populations to determine a per capita amount (approximately $27 for 1998-99). Each unit receives an amount equal to its weighted population times the statewide per capita payment amount.

HB 5989

The total amount to be distributed, **one-third of the statutory revenues,** is divided by the state total of all individual unit weighted populations to determine a per capita amount (approximately $15 for 1998-99). Each unit receives an amount equal to its weighted population times the statewide per capita payment amount.

Comments

The standard deviation calculation used in SB 1181 implicitly assumes that the population of taxable values per capita is approximately normally distributed— the bell-shaped curve prominent in beginning statistics courses. However, the distribution of taxable value per capita is clearly not normal. Since the minimum taxable value is $1,933 (Benton Harbor), the mean is $21,192, and more than ten values exceed $200,000, the distribution has a rather long tail stretching out to the right of the mean. In statistics a distribution like this is referred to as skewed (in this case to the right), and if the curve is materially different from the "normal shape", the statistical properties ascribed to the various measures of variation do not hold. Although the relationship between the standard deviation statistic and the weights does not appear to have any basis in statistical theory, the use of the statistic itself is probably not warranted. The use of a simple ratio, as in HB 5989, would reflect variation and eliminate the complexities inherent in the standard deviation measure.

The exclusion of taxable values per capita exceeding $50,000 from the calculation of the standard deviation in SB 1181 was necessary in order that the standard deviation would be small enough for the weights chosen to be symmetrical around the state average. If larger values were included in the calculation, the computed standard deviation would have exceeded the state average and the weighting scheme would not have worked.

Weights Based on Unit Type/ Population

Each bill creates a population weighting mechanism based on population size and the type of local unit.

SB 1181

Population Cities	Weight
Less than 5,000	2.5
At least 5,000 but less than 10,000	2.8
At least 10,000 but less than 30,000	3.0
At least 30,000 but less than 50,000	3.2
At least 50,000 but less than 60,000	3.3
At least 60,000 but less than 100,000	3.5
At least 100,000 but less than 140,000	4.0
At least 140,000 but less than 180,000	4.1
At least 180,000 but less than 1,000,000	4.2
More than 1,000,000	4.5
Villages	
Less than 1,000	1.5
1,000 or more	2.0
Townships	
Less than 10,000	1.0
At least 10,000 but less than 25,000	1.2
At least 25,000 but less than 50,000	1.8
More than 50,000	2.4

HB 5989

Population Cities	Weight
5,000 or less	2.50
More than 5,000 but less than 10,001	3.00
More than 10,000 but less than 20,001	3.60
More than 20,000 but less than 40,001	4.20
More than 40,000 but less than 80,001	5.18
More than 80,000 but less than 160,001	6.22
More than 160,000 but less than 320,001	7.46
More than 320,000 but less than 640,001	8.96
More than 640,000	10.75
Villages	
Less than 5,000	1.50
More than 5,000 but less than 10,001	1.80
More than 10,000	2.16
Townships	
5,000 or less	1.00
More than 5,000 but less than 10,001	1.20
More than 10,000 but less than 20,001	1.44
More than 20,000 but less than 40,001	1.73
More than 40,000 but less than 80,001	2.07
More than 80,000	2.49

In each bill, the weighted populations are computed as follows:

Weighted Population = Actual Population x Unit Type Weight

SB 1181

The total amount to be distributed, **forty-five percent of the statutory revenues,** is divided by the state total of all individual unit weighted populations to determine a per capita amount (approximately $11 for 1998-99). Each unit receives an amount equal to its weighted population times the statewide per capita payment amount.

HB 5989

The total amount to be distributed, **one-third of the statutory revenues,** is divided by the state total of all individual unit weighted populations to determine a per capita amount (approximately $5.50 for 1998-99). Each unit receives an amount equal to its weighted population times the statewide per capita payment amount.

Comments

The weighting scales used in each bill are based on two fundamental assumptions about the appropriate public policy related to the state's support by type of government unit and the population size of the unit. Specifically, the weighting scales implicitly assume that the complexity and, presumably the range of needed public services, increases as the unit type moves from township to village to city. Also, within each unit type, the complexity and costs increase, on a per person basis, as the population of the unit increases. It is not self-evident that these assumptions are grounded in empirical research. And while the assumption on complexity between unit types can be supported anecdotally, the differences in weights for the three types of units, holding population constant, are arbitrary.

In SB 1181, the top population interval in the city weights is 1,000,000 and affects only the City of Detroit. When the 2000 census results are implemented in the formula, it is highly likely that Detroit will fall below the 1,000,000 mark and thus no city would qualify for that weight.

Yield Equalization

Both bills define the concept of yield equalization as the state payment (if any) to a unit which guarantees that the total local and state proceeds from each equivalent mill of local tax effort will yield at least a minimum amount. Local tax effort includes property tax mills levied by the unit plus the mills that would be required to yield the revenues from the city income tax and utility excise tax, if the unit levies these taxes. The amount per mill is computed as if the entire statutory revenue base were to be distributed in this manner. The millage is limited to the lesser of the actual equivalent mills levied by the unit or 20 mills.

Comments

Yield equalization is directly related to two general policy goals for revenue sharing programs. By equalizing yield, the approach directly (1) reduces the disparities existing between units and (2) recognizes tax effort by equalizing revenue yields for mills actually levied.

Both plans limit the mills subject to equalization to 20 mills. Both plans calculate payments as if the entire statutory pool of revenue would be distributed using yield equalization and then allocate a fraction of the revenues by prorating the payments. It is argued that yield equalization is appropriate public policy from the state standpoint because it levels the financial playing field by creating a minimum guarantee, per unit of tax rate, in combined state and local revenue.

SB 1181

The guarantee in SB 1181 is approximately $19,500 taxable value per capita or $19.50 per mill per capita.

The actual payment amounts for each unit (if any) are **ten percent** of the amounts they would receive if the entire statutory base were distributed using the yield equalization formula, thus distributing **ten percent of**

HB 5989

In HB 5989 units levying fewer than four mills would be excluded from participation in this part of the formula. The guarantee is approximately $19,600 taxable value per capita or $19.60 per mill per capita.

The actual payment amounts for each unit (if any) are **one-third** of the amount they would receive if the entire

the statutory revenues.

statutory base were distributed using the yield equalization formula, thus distributing **one-third of the statutory revenues**.

Comments

The form of yield equalization used in both bills makes two modifications, presumably aimed at the goal of including more units in the formula, from a "pure" yield equalization formula. First, by limiting the number of mills equalized to a maximum of 20, the taxable value per capita that is equalized for the entire revenue pool is nearly $20,000 for both plans. This amount is only slightly less than the statewide average. If the local tax effort were not limited, the taxable value per capita equalized would fall to about $11,700 and the distribution of payments would be concentrated on units with very low taxable value per capita. Secondly, by calculating the equalization payment as a fraction of the amount that would be paid if the entire revenue pool were distributed by the formula, the taxable value per capita is considerably higher than it would be if the that approach were not used. For example, if ten percent of the revenue pool were distributed, as in SB1181, even with the 20 mill limit on local tax effort, the taxable value per capita equalized would be only about $8,600.

Also, by limiting the tax rate in the equalization calculation to 20 mills, the city income tax is completely removed from the calculation for four cities levying a city income tax and more than 20 mills of property tax.

HB 5989 excludes units with local tax effort of less than four mills from participation in the formula. The result is that approximately $2.2 million that otherwise would go to 424 units (415 townships and 9 villages) levying fewer than four mills and having taxable value per capita under the guarantee threshold is distributed to other units. This seems to be inconsistent with the rationale for equalizing yield.

Total Formula Payments

SB 1181

Phase-in

The bill provides for a relatively complicated phase-in of the new formula payments which would extend several years into the future. The yield equalization part of the formula is phased in over a six-year period with one-sixth of the payment from this component from the yield equalization calculation in the first year (1998-99) and five-sixths from the formula in effect in for 1997-98. In the sixth year (2003-04), the yield equalization calculation is fully phased in.

Payment Increase Limits

The other two components of the formula are computed as if the new formula is fully in effect in 1998-99. Then the yield equalization component is added to the

HB 5989

Phase-in

The bill provides for a ten-year phase-in of the new formula payments. One-tenth of the new formula allocation and nine-tenths of the old formula allocation is provided in 1998-99 and the phase in occurs in increments of ten percentage points each year. The phase-in of the new formula percentages is completed in 2007-08.

Payment Increase Limits

The actual payments are limited as follows: The statutory amount described above is added to the constitutional amount and the percentage change from the

amounts computed for the other factors to determine an initial total payment mount for the statutory portion of revenue sharing. This amount is then added to the constitutional amount and the percentage change from the 1997-98 total statutory plus constitutional amount is computed. The amount in excess of an eight percent increase is not paid to the unit and becomes part of a total amount distributed on a per capita basis to any unit with an initial year-to-year decrease of twelve percent or more. This adjustment has the effect of moving some twelve percent losers to gains in excess of eight percent, so a second round of calculations are performed to remove any amounts in excess of eight percent. The aggregate of these amounts is distributed on a per capita basis to units reflecting any year-to-year loss in total payments. In 1998-99, Citizens Research Council estimates $144 million would be redistributed through the two calculations. The following table summarizes the mechanism limiting growth and redistributing excess growth amounts:

Fiscal Year	Excess Growth Limit	Initial Redistribution Percentage	Secondary Redistribution Percentage
1998-99	8 %	12 %	Any Loss
1999-00	8 %	10 %	Any Loss
2000-01	8 %	8 %	Any Loss
2001-02	8 %	4 %	Any Loss
2002-03	8 %	4 %	Any Loss
2003-04	8 %	Any Loss	N.A.
2004-05	8 %	Any Loss	N.A.
2005-06	8 %	Any Loss	N.A.

N.A. – not applicable

Calculations of the secondary redistribution for years after 2002-03 indicate that no units exceed eight percent growth after the initial eight percent calculation and redistribution. The redistribution of growth exceeding eight percent would continue for many years into the future if statutory and constitutional revenues increase by four and one-half percent annually after 1998-99, as the Senate Fiscal Agency analysis assumes. Citizens Research Council estimates indicate $36 million would be paid in 2005-06 to communities through this mechanism.

1997-98 total statutory plus constitutional amount is computed. Any amount in excess of an eight percent increase is not actually paid to the unit and becomes part of a total amount distributed so that units reflecting the largest relative losses have a uniform maximum loss, determined by adding the excess of eight percent growth revenue until it is exhausted. This calculation is made each year until no excess growth amounts remain for distribution to the largest relative losers under the new formula mechanism. The process of redistributing growth in excess of eight percent will extend beyond the end of the ten-year phase-in period even without taking into account the 2000 Census, which will favorably affect payment amounts for units already on a growth path exceeding eight percent.

It is likely that growth amounts in excess of eight percent would still occur for a few units an additional ten years after 2005-06.

Comments

The phase-in of the new formulas recognizes that implementing the changes in one year would cause very large changes and potentially produce undesirable effects among both winners and losers. As a consequence, both plans establish relatively long phase-in periods so the units would be able to manage the changes in this revenue source in their budgets.

While the goal appears to be to create gradual changes, given the fundamental changes in allocations that are proposed, some probably unintended and perhaps undesirable problems exist with the phase-in mechanism in SB1181. The redistribution of amounts exceeding an eight percent growth on a year-to-year basis creates what has been referred to as a "leapfrog" effect. Some units eventually destined to lose revenue under the plan, would actually increase faster than the overall increase in the revenue pool for a year or two and then begin to decline. The desired effect of a "soft landing" is mitigated by this mechanism. It is not unlike an aircraft climbing a few thousand feet before it starts its crash glide-path.

This problem does not exist with the phase-in mechanism in HB5989 and consideration of incorporating a phase-in calculation similar to HB5989 in SB1181 is indicated.

Redistribution Between Types of Governmental Units

Both bills cause significant redistributions of statutory revenue sharing from cities, as a group, to townships and villages. The following tables summarize the effects on the statutory and total payment levels, assuming the changes were fully implemented, measured in 1997-98 dollars. However, the phase in mechanism delays the full effects of the change for many years for some local units.

SB 1181

	Dollar Change ($ millions)	Per Cent Change	
		Statutory	Total
Cities	(96.4)	(18.4)	(11.4)
Townships	91.3	155.2	31.6
Villages	5.1	44.8	18.4

Within the total changes for each type of unit, significant increases and decreases would occur. For example, within the $96.4 million losses for cities, 81 units would lose $161.5 in total and 203 units would gain $65.1 million. Within the group of losing cities, Detroit would lose $142.9 million.

Townships reflect within the total gain of $91.3 mil-

HB 5989

	Dollar Change ($ millions)	Per Cent Change	
		Statutory	Total
Cities	(45.3)	(8.5)	(5.4)
Townships	40.6	79.4	14.4
Villages	4.7	41.9	17.0

Within the changes for each category of unit taken as a group, significant increases and decreases would occur. For example, within the $45.3 million of losses for cities, 136 units would lose an aggregate of $101.4 million with 148 units gaining $56.1 million. Within the total losses, Detroit would lose $69.8 million.

By contrast, within the $40.6 million of gains for town-

lion, 51 units losing $1.2 million and 1,191 units gaining $92.5 million.

ships, 111 townships would lose a total of $5 million, while the remaining 1,131 townships reflect gains totaling $45.6 million.

Comments

Both plans would cause significant changes in the distribution of funds from units with relatively high local tax effort (primarily cities) to units with low tax rates. The result is consistent with the goals professed by critics of the relative tax effort mechanism that rewarding higher tax rates with increased revenue sharing payments is undesirable. While tax effort is present in both plans through the yield equalization mechanism, it is greatly lessened as a factor in determining payment levels.

Other Considerations

SB 1181

(1) Ninety percent of the statutory revenues are distributed based on weights that change abruptly as notches are reached when taxable value per capita and population changes. A unit with a value very close to the notch in a table of weights could experience a significant change in revenue sharing payments as a result of a very small change in a table value. For example, units with taxable value per capita above the state average could face the prospect of the payments from the taxable value variation part of the formula (45 percent of the total) declining by 15 percent to 71 percent as taxable value per capita increases.

The unit type/ population weights for cities have only two notches resulting in per capita payment declines of more than ten percent as population declines. Villages and townships have very large notches in percentage terms, all at least 20 percent as population increases. When the 2000 census counts are implemented in the formula calculations, many units will experience changes in their weights and payment amounts. Forty-five percent of the statutory revenues are distributed using these weights.

HB 5989

(1) One-third of the statutory revenues are distributed based on weights that change abruptly as notches are reached when population changes. A unit with a value very close to the notch in a table of weights could experience a significant change in revenue sharing payments as a result of a very small change in a table value.

The unit type/ population weights for all units are spaced 20 percentage points apart. When the 2000 census counts are reflected in the formula calculations, many units would experience changes in their weights and payment amounts. After the 2000 census changes are implemented, the notches are not likely to create additional abrupt changes in payments, since most units will not have their population used for revenue sharing change between census counts.

Comments

The notch effects could be eliminated by creating a numerical relationship between the variables in the weighting scales and unit populations, such as the taxable value ratios in HB 5989. Instead of having population intervals with the same weight assigned to each unit falling within a specific interval, each interval could contain a continuum of weights so that, as population changed within an interval, the weight changed accordingly. This approach could also be used to eliminate the notch effect for the standard deviation weights in SB 1181.

(2) The phase in mechanism in both bills is based in part on the combined percentage change in constitutional plus statutory payments. Situations would be created for some units where they would receive no statutory payments in years immediately following the implementation of the 2000 census counts in the formula. The mechanism limits the increase to eight percent from the previous year payment. Since the constitutional payment is guaranteed, a relatively large increase in population could not only cause a year-to-year increase exceeding eight percent by itself, but the increase could exceed the total of all statutory payments received in the immediate prior year. This situation will most likely arise in townships with low tax rates and rapidly growing population. A total of 832 local units (825 townships) levy less than three mills of property tax. Any of those units experiencing population growth exceeding approximately 30 percent during the intercensal period will face a period of zero statutory payments. The larger the population increase, the longer the period of zero statutory payments would be. Among the units levying fewer than three mills, 547 units levy fewer than two mills and 217 units levy less than one mill. The population increase thresholds for these units are approximately 25 percent and 21 percent respectively.

Comments

It is not clear why changes in payments resulting from population increases in the 2000 census should be subject to the limitations both bills impose. The constitutional payments must reflect the new census counts and elimination of statutory payments, even for one year may be an unintended consequence of a phase-in mechanism designed to smooth out the effects of a new statutory formula.

(3) The unit type/ population weights increase, for a given population, as governmental status changes from township to village to city. While the responsibilities of the units become progressively more complex and presumably more costly (the stated rationale for the difference in weights), the prospect of increased revenue sharing payments could be enough additional incentive to cause townships already considering changing to a city to make the change. It seems unlikely, however, that large numbers of units would find the financial effects significant enough by, themselves, to justify the change in status.

Comments

This may be largely a theoretical concern, since the added costs in terms of expanded services and responsibilities would likely exceed any revenue sharing gain. For a township with 35,000 population, the gain in revenue sharing payments from converting to city status would be approximately $500,000 in both bills, likely between five and ten percent of the general operating revenue. Unless the unit was already providing a full array of "city services" and the citizens of the township did not object to the increased potential for higher taxes associated with becoming a city, such a small gain in revenue is not, by itself**,** a significant incentive for change.