

Appendix: Effect of Chargeable Deviations in the State Aid Formula

Introduction: Oklahoma’s state aid formula calculates the net foundation aid to be received by each district first by multiplying a factor (currently \$1,825.76) times the district’s weighted average daily membership to set the cost of the foundation program. From this cost amount is subtracted the total of six sources of foundation program income: 15 mills of local property taxes based on the current year valuations and five dedicated sources, including motor vehicle collections, based on preceding year actual collections calculated according to the law for each.

Argument 1. OTC, in opposing the Plaintiffs’ (eight underpaid districts) motion asking the District Court to order the correcting payments now being made, argued that the state aid formula had corrected for the losses OTC’s wrongful apportionments had caused so there was no need for further relief. OTC cited the 2018 Oklahoma Supreme Court decision in a case brought by the Stroud school district after learning that certain real property had been included on the tax rolls of neighboring districts instead of on Stroud’s, resulting in less property tax revenue. The Court found “that Stroud did not suffer any monetary loss to its general fund.”

The Plaintiffs, in their Reply in Support of Motion for Order to Show Cause, demonstrated how an error in the payment of the Ad Valorem chargeable may be offset through the formula, but an error in the payment of motor vehicle collections is not, using Table 1 as follows:

“Simple examples are set forth below, using a hypothetical school district in the situation of Stroud for one example and of the Plaintiffs for the other to demonstrate, each experiencing a \$200,000 error:

	District (AV taxes properly assessed)	District (AV taxes erroneously assessed)
Foundation Program	\$10,000,000	10,000,000
Less Ad Valorem	3,000,000	2,800,000
Other Chargeables	2,000,000	2,000,000
Foundation Aid	5,000,000	5,200,000
Total actually received		10,000,000

The school district still has available the total of \$10,000,000 for its general fund. The foundation aid calculation corrected for the error.

School district	Foundation Aid Calculation	School district with OTC error
Foundation Program	\$10,000,000	10,000,000
Less Motor Vehicle Rev.	1,000,000 (prior year)	800,000 (received)
Other Chargeables	4,000,000	4,000,000
Foundation Aid	\$5,000,000	5,000,000
Total actually received		9,800,000

The school district has available a total of only \$9,800,000 for its general fund. The foundation aid calculation does not correct for this error.”

The District Court understood the distinction and ordered the correcting payments now being made.

Argument 2. The nine overpaid school districts that petitioned the Oklahoma Supreme Court to stop the correcting payments also cited the Stroud decision and stated, “State aid funds have already offset the losses RPI (real parties in interest, i.e. the underpaid districts) claim. Regarding 70 O.S. Sect. 18-200.1, RPI misleadingly assert that ‘the statute does not adjust State Aid when OTC short-changes a district in the current year.’ RPI Brief, at 13. To be sure, they are correct that it does not adjust state aid *in the current year*. Instead, the statute adjusts the state aid formula, on a dollar-for-dollar basis, in the following fiscal year. ... RPI’s Brief, at 13-14, uses made up numbers. Real numbers, however, tell the real story.”

The overpaid districts go on to explain how the preceding year’s motor vehicle collections are used to determine the current year state aid, exactly the dynamic illustrated by the underpaid districts’ “made up numbers” in this Table 2 submitted to the Supreme Court. Table 2 also demonstrates that the mathematical effect of the Second Year adjustment in state aid is to offset the now lower Motor Vehicle revenue in the Second year; the same money cannot also, as the overpaid districts argued, “offset the losses RPI claim.”

Table 2

		Underpaid	District			Overpaid	District	
	First	Year	Second	Year	First	Year	Second	Year
	Formula	Actual	Formula	Actual	Formula	Actual	Formula	Actual
Foundation Program	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Motor Vehicle	10,000	8,000	8,000	8,000	10,000	12,000	12,000	12,000
Other Chargeables	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000
Foundation Aid	50,000	50,000	52,000	52,000	50,000	50,000	48,000	48,000
Actually Received		98,000		100,000		102,000		100,000
Gain/(loss)		(2,000)		-		2,000		-

The overpaid districts never refuted the clear mathematical effect shown in Table 2 that a deviation in motor vehicle collections from the amount used to calculate state aid is not corrected by the resulting change in state aid the following year.

Argument 3. In response to the overpaid districts’ apparent belief that “made up numbers” don’t show the same mathematical properties as “real numbers”, the underpaid districts filed the following Table 3 as an exhibit with the Court, showing actual numbers for an underpaid and and overpaid district through FY 2018. These number show, with real amounts for both actual motor vehicle collections and net foundation aid received, that Sand Springs was paid well below the formual Foundation Aid amounts in FYs 2016, 2017 and 2018, while Norman was overpaid significantly during each of the same years. The actual statewide motor vehicle collections amounts are also provided to show that some of Sand Springs’ losses were due to overall reductions that affected all districts similarly. This also shows that Norman and other overpaid districts benefited more than the raw numbers indicate.

Table 3

	2015	2016	2017	2018	2019
Sand Springs	Formula	Formula	Formula	Formula	Formula
WADM	8,246.88	8,246.88	8,199.37	8,179.40	8,098.11
Factor	1609	1592	1,567	1573	1756.76
Foundation Aid	13,269,230	13,129,033	12,848,413	12,866,196	14,226,436
Motor Vehicle	2,611,990	2,611,509	2,215,659	1,966,827	1,935,147
Other Chargeables	4,091,780	4,178,371	4,332,482	4,361,423	4,446,125
Net Foundation Aid	6,565,460	6,339,153	6,300,272	6,537,946	7,845,164
Formula Aid + MVC	9,177,450	8,950,662	8,515,931	8,504,773	
Aid + Actual MVC	9,176,969	8,554,812	8,267,099	8,473,093	
Gain/(Loss)	(481)	(395,850)	(248,832)	(31,680)	
	-0.02%	-15.16%	-11.23%	-1.61%	
	2015	2016	2017	2018	2019
Norman	Formula	Formula	Formula	Formula	Formula
WADM	24,861.08	25,674.14	25,688.00	26,147.69	26,317.78
Factor	1609	1592	1,567	1573	1756.76
Foundation Aid	40,001,478	40,873,231	40,253,096	41,130,316	46,234,023
Motor Vehicle	5,046,395	5,049,148	5,620,044	5,671,979	5,984,038
Other Chargeables	17,542,729	17,960,329	19,227,887	19,614,808	20,304,671
Net Foundation Aid	17,412,354	17,863,754	15,405,165	15,843,529	19,945,314
Formula Aid + MVC	22,458,749	22,912,902	21,025,209	21,515,508	
Aid + Actual MVC	22,461,502	23,483,798	21,077,144	21,827,567	
Gain/(Loss)	2,753	570,896	51,935	312,059	
	0.05%	11.31%	0.92%	5.50%	
Actual State MVC	261,403,114	251,872,024	240,145,328	245,031,147	
		-3.65%	-4.66%	2.03%	

Not to be outdone the overpaid districts filed an affidavit, to which the underpaid districts could not reply, that began as a re-statement of Argument 2 above that the subsequent year adjustment in state aid offsets a preceding year loss in the motor vehicle chargeable, still without any demonstration of why tables, like Table 1 and Table 2, with made up numbers are mathematically incorrect. The only other attempted demonstration that underpaid districts had their losses fully offset by

state aid was the inclusion of Exhibit A, attached hereto, purporting to show that Sand Springs, an underpaid district had been made whole.

What the affidavit didn't address is that the 2017 Legislature amended the apportionment statute for motor vehicle collections which went into effect with the September, 2017 payments to districts. The change in apportionment method, from being based on the same amount received the previous year to being based on each district's share of average daily attendance statewide, caused significant deviations from the amounts districts were charged with in calculating net foundation aid. When determining the effect of deviations from the amounts charged over one or more years, it can be shown mathematically that what matters is the first year chargeable amount and the final year actual amount; the cumulative deviation is simply the difference between the two. So the Exhibit A is likely a fair representation of what would have occurred which is that Sand Springs would have suffered the same permanent loss in funding from the precipitous deviation in its actual motor vehicle collections from the amounts charged in the formula as a result of the Legislature's action as it did from the Commission's wrongful apportionments followed by the Legislature's action. However, it does not support this final statement in the affidavit:

11. By the close of fiscal year 2019, the state aid formula will have fully offset any underpayment or overpayment at issue in the November 13 Order. On the other hand, enforcement of the November 13 Order will perpetuate underpayments and overpayments, and will result in disruptions of scores of school districts' budgets, not just during fiscal year 2019, but also in fiscal years 2020 and 2021.

The author wrongly believes that subsequent year adjustments in foundation aid offset deviations in the chargeable revenues as explained above in Argument 2. The author is partially correct in describing the needless disruptions that will occur if the correcting payments are included in the chargeable amount used to calculate subsequent year net foundation aid; only it is not just the disruption that matters, rather the underpaid districts will again be underpaid when they lose back the correction ordered by the District Court.

If the motor vehicle collections apportionment law had not been amended, then pursuant to the Oklahoma Court of Civil Appeals February 9, 2018 Order, after

completion of its recalculations, the OTC would have resumed making payments pursuant to the apportionment law that was based on districts receiving the same amount as the year before. Because these amounts for underpaid districts, like the Plaintiffs, would exceed the amounts charged in the state aid calculations, they would have received compensating overpayments for twelve consecutive months at which time the lagging adjustment in the chargeable amount would have roughly offset the losses and gains from the OTC's wrongful payments to districts, both underpaid and overpaid.

How the math works:

F_n = foundation program cost in year n; C_n = chargeable collected in year n;

A_n = foundation aid in year n; R_n = actual foundation revenue in year n.

$A_2 = F_2 - C_1$, therefore $R_2 = F_2 - C_1 + C_2$,

$A_3 = F_3 - C_2$, therefore $R_3 = F_3 - C_2 + C_3$,

$A_4 = F_4 - C_3$, therefore $R_4 = F_4 - C_3 + C_4$,

$A_5 = F_5 - C_4$, therefore $R_5 = F_5 - C_4 + C_5$, therefore

$R_2 + R_3 + R_4 + R_5 = F_2 + F_3 + F_4 + F_5 - C_1 + C_5$; and

therefore since Mid-Del was paid \$8,042,234 from motor vehicle collections in FY 2015 and \$5,373,103 in FY 2019 (excluding court ordered correction), it has suffered an uncompensated net loss in foundation aid revenue of \$2,669,131 over fiscal years 2016 through 2019 due entirely to its decline in motor vehicle collections receipts.

If You Underpay Me I Cannot Be Made Whole Till You Overpay Me:

Following is Table 4 with a calculation for each fiscal year, 2012 through 2019, for the seven underpaid Petitioner districts and seven of the overpaid districts that unsuccessfully petitioned the Supreme Court. The calculations are each a proportion. The numerator is the total of the chargeable amounts for each of the revenues sources other than motor vehicle collections, the amount of net foundation aid and the amount of motor vehicle collections actually received in that year. The denominator is the cost of the foundation aid program for the year.

Using the entry for Mid-Del, 2018 as an example, the amounts for the calculation are found on the OSDE's 2018 and 2019 Calculation sheets that are included in Appendix B. The numerator is the sum of Ad Valorem \$8,186,767, County 4 Mill \$2,366,843, School Land \$2,192,934, Gross Production \$86,264, REA \$55,848 and Net Foundation Aid \$17,560,209, all from the 2018 Calculation sheet, and Motor Vehicle \$5,318,943, from the 2019 Calculation sheet, which is \$35,767,807; and the denominator is Foundation Aid \$35,943,286, from the 2018 Calculation sheet, yielding the ratio calculated as 0.9951179.

Because motor vehicle collections affect the revenue a district receives each year in only two ways, i.e. the amount actually received from motor vehicle collections and the amount of state aid the following year, the impact of deviations from the amount used to determine state aid can be shown by using actual state aid and actual motor vehicle collections for each year while assuming each of the other chargeable revenue sources is received as charged in the calculation. Therefore, a ratio greater than one in a year means the effect of net foundation aid and motor vehicle collections was to provide the district with more revenue than needed to meet the cost of the foundation program; a ratio less than one in a year means the effect of net foundation aid and motor vehicle collections was to provide the district with less revenue than needed to meet the cost of the foundation program.

The resulting chart, showing overpaid districts in blue and underpaid districts in red, clearly shows the effect of the OTC's wrongful payments in fiscal years 2016, 2017 and 2018. It also clearly refutes the Argument 2 above that the subsequent year adjustment in state aid offsets the prior year losses in motor vehicle collections. If you underpay me I cannot be made whole till you overpay me. The chart calculations for FY 2019 use the motor vehicle collections amount for each district BEFORE the Court ordered adjustments are made. Including those adjustments in the calculations and continuing through FY 2020, as the remaining twelve correcting payments are made, will reverse the red and blue lines, i.e. finally the underpaid districts are being overpaid to offset their earlier losses—exactly what the District Court intended.

Table 4

	2012	2013	2014	2015	2016	2017	2018	2019
Altus	1.0061965	1.0057120	1.0143151	0.9996888	0.9657340	0.9814035	0.9934724	0.9994303
Ponca City	1.0060558	1.0054625	1.0136169	0.9999000	0.9695964	0.9815971	0.9961729	0.9993857
Lone Wolf	1.0054230	1.0044625	1.0103972	1.0009474	0.8949774	0.9879257	0.9979647	0.9927257
Muskogee	1.0062527	1.0055949	1.0139750	0.9997989	0.9746388	0.9833822	0.9983673	0.9986864
Mid-DeI	1.0065147	1.0057848	1.0144288	0.9998672	0.9555497	0.9741314	0.9951179	1.0013610
Quapaw	1.0063386	1.0058095	1.0147622	0.9994039	0.9654282	0.9821338	1.0009618	0.9999962
Sand Springs	1.0061675	1.0057545	1.0142485	0.9999638	0.9698493	0.9806332	0.9975377	1.0013390
Yukon	1.00658744	1.00599743	1.01498367	1.00024502	1.01523517	1.00249342	1.00991318	1.00585563
Norman	1.00624615	1.00567965	1.01385612	1.00006882	1.01396748	1.00129021	1.00758708	1.00227578
Moore	1.00651285	1.00591789	1.01495286	0.99986529	1.01388101	1.00145986	1.00848819	1.00460158
Bixby	1.00684451	1.00590934	1.0150841	1.00023832	1.03741457	1.01249921	1.01235668	1.00734862
Jenks	1.00636348	1.0057877	1.01444916	1.00007381	1.01336458	1.0016653	1.0093787	1.0067766
Union	1.00632858	1.00562616	1.01385544	1.00005824	1.0190555	1.00391625	1.0055136	1.00241081
Piedmont	1.00678604	1.00603309	1.01493516	1.00035255	1.0567946	1.02205034	1.02026306	1.01275437

Validation of Appendix C:

We each are familiar with the calculations involved in determining the amount of foundation aid that school districts in Oklahoma are paid by the Oklahoma State Department of Education. The underlying data presented in this Appendix C have been assembled by Gary Watts from what is available on the OSDE website.

Assuming the data are accurate as represented, then we each affirm that the analysis described and conclusions reached as presented are correct according to widely accepted methods of analysis used by professionals in the fields of economics, finance and mathematics education.

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