Implementation of the SB 287 Funding Formula:
Impact on Missouri School Districts

Prepared for the Joint Committee on Education
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September 2011

EXECUTIVE SUMMARY

In 2005, the Missouri General Assembly passed SB 287, a revised funding formula for K-12 education. This funding formula is based on a "successful schools" model of funding modified to include additional provisions, such as a hold harmless designation.

This review of the impact of the funding formula is presented with numerous qualifiers. Many of the findings are couched within a specific context that is crucial to the overall interpretation of the effect. Further, any analysis is challenged by the combination of static and dynamic elements in the formula and the regular updates to data submitted by the districts to the Department of Elementary and Secondary Education (DESE).

The analysis of revenue and expenditures focuses primarily on 2006 to 2009, as 2009 was the peak year for funding thus far under the SB 287 formula. Districts have been classified in various ways for this analysis (e.g., size, locale) and each classification has a rationale but also has caveats that are important to note when drawing conclusions. State aid has increased for nearly all of the school districts that are funded under the formula as was the intention. However, there have also been gains in state aid for districts that have been held harmless because of the inclusion of the dollar value modifier, a variable representing wage variations across the state. In addition some of the very small districts that have been held harmless may show a gain per ADA (i.e., per pupil) because of a decline in enrollment and the way their state aid is calculated under the hold harmless provision.

In the SB 287 formula, local effort is determined by a fixed assessed valuation from 2004. Districts funded under the formula that have seen an increase in assessed valuation since 2004 do not have the increased local revenue included with the local effort that is subtracted from the calculated funding required to determine total state aid due to the district.

While districts that have been funded exclusively under the SB 287 formula and not held harmless in any year since the phase-in began have seen the highest increases in state aid, increases in their expenditures per ADA as well as expenditures on teacher salaries, administrator salaries, and professional development have been on par with other districts.

This report attempts to provide an overview of the impact of changes to Missouri's school funding formula. However, for as many questions as have been addressed, there are additional questions that could be explored including distribution of revenue within districts, charter school funding, and a future review of SB 287 once the formula has been fully phased in.

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BACKGROUND

The SB 287 (2005) education funding formula was developed to address the issue of adequacy in state funding of public schools. Unlike the previous formula which emphasized equity of inputs, the adequacy-based successful schools funding model was designed to provide the funding necessary to support an adequate education based on the spending practices of successful schools. Missouri districts meeting certain achievement outcomes were identified as the "successful schools" upon which the formula is based. The resource distribution was not necessarily intended to be equal but rather was meant to reflect the needs of the students in the district. (For additional information on school funding models, see Appendix A.) In 2009, the Missouri Supreme Court found in favor of the State in a lawsuit filed by a coalition of school districts challenging the method and rationale of distribution of state aid under the SB 287 formula. In the opinion issued by the Court, they stated "…[F]unding schools in a way that envisions a combination of state funds and local funds, with state funds going disproportionately to those schools with fewer local funds, cannot be said to be irrational."[1]

Characteristics of the performance districts designated as the successful schools in the funding model were used to develop a baseline for the *adequacy target* and thresholds for *weighted average daily attendance* (WADA).

The adequacy target is derived from the per average daily attendance (i.e., per pupil) operating expenditures of the performance districts.[2] The adequacy target is recalculated every two years. Should the recalculation result in a higher amount, the amount of the increase is divided over two years. A recalculation cannot result in a decrease of the adequacy target. Additionally, for the phase-in period of the formula, statute dictates that the adequacy target may not be adjusted downward. However, per statute, once the formula is fully phased in, the adequacy target "may be adjusted to accommodate available appropriations."[3] What that means is that upon completion of the phase-in there will be a statutory mechanism to address an appropriation that is insufficient to fully fund the formula. While the statute reads *may* and not *shall* in regards to adjusting the adequacy target, this is the only mechanism referenced in statute for addressing shortfalls under this formula.

A weighting factor, found in many states' funding formulas, is a consideration of the variations in student needs that require additional resources. For example, if a district has a high population of students with limited English proficiency, a formula may add additional weight to provide for the education of those students. Missouri's successful schools model adds weight for over-threshold numbers of students with limited English proficiency, low-income, and special needs. The variables are included in the equation that generates a *weighted average daily attendance* (WADA) number for each district.

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[1] *Committee for Educational Equality v. State of Missouri (2009).*
[2] The top and bottom five percent of districts as ranked by expenditures per ADA are excluded from this average to minimize the impact of outliers.
[3] Section 163.011, subsection 18, RSMo.

Under the previous formula, districts could affect their state aid by the level at which they set their local tax levy. Under the current formula, districts are not able to directly alter their state aid by increasing their local levy. State aid is calculated based on a $3.43 *performance tax levy*. If a district's levy is higher than $3.43, the additional revenue is not subtracted from the state aid calculation. A district can set a levy as low as $2.75.[4] State aid is still calculated based on $3.43, and the calculation will show greater local revenue than what is actually being received and will reduce the amount of state aid accordingly. For some districts with high local wealth, a $2.75 levy may be sufficient to meet their needs. Other districts may simply struggle to pass a tax levy increase that would take them over $2.75.

The *dollar value modifier* (DVM) is another variable included with the SB 287 formula and is intended to reflect wage differentials across geographic regions in Missouri. By statute, the DVM can never be lower than 1.0.[5] The highest DVM applied so far has been 1.104, meaning that a district with that DVM would have its calculated state aid increased by 10.4%.

One component of SB 287 that is not a feature of a successful schools model but was incorporated into the statutory language on school funding is the *hold harmless* provision.[6] Currently, some districts are not funded based on their formula calculation, but rather are covered by a hold harmless provision that distributes state aid based on 2006 funding if it is higher than their calculated formula amount.[7] For small districts with enrollments of 350 students or fewer, they will not drop below the total state aid amount received in 2006. For districts with enrollments over 350 students, the state aid per WADA cannot drop below 2006 levels.

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[4] Three districts are covered under special provisions of the law that allow for a levy below $2.75: Pemiscot County Special School District, St. Louis Special School District, and Camdenton R-III.
[5] Section 163.011, subsection 5, RSMo.
[6] The hold harmless provision was not new with the SB 287 formula. The previous formula (SB 380) also contained a hold harmless provision.
[7] 2006 refers to FY2006 or the 2005-06 academic year. Other years are referenced accordingly.

INTRODUCTION

This report reviews the changes in revenue and expenditures for districts in the years immediately prior to and following the implementation of the SB 287 formula.[8] In particular, the report will address whether the implementation of the SB 287 formula has had a disparate effect on any particular category of districts. [9] Further, the report will discuss any changes in the pattern of district expenditures per ADA, average teacher salaries, average administrator salaries, and professional development, and to what degree those expenditures correlate with changes in revenue.

In this report, Missouri school districts are classified in several ways. Since the implementation of the SB 287 formula, some districts have not been exclusively hold harmless or on the formula. Districts have been placed in one of three categories to identify the calculation that determined their state aid.

Formula Districts   Districts that have been on the formula since its implementation. *(n=297)*

Formula/Hold Harmless Districts   Districts that have been both on the formula and hold harmless during certain years since the implementation of the formula. *(n=109)*

Hold Harmless Districts   Districts that have been hold harmless each year since the implementation of the formula. *(n=116)*

Although districts are labeled as "formula" or "hold harmless" based on which determined their state funding during the years in the analysis, no district is inherently "hold harmless" or "formula". With each payment, DESE calculates state aid under both the SB 287 formula and according to the hold harmless provision. Whichever is the greater of the two is the one the district receives. The category of "formula/hold harmless" is the most difficult to evaluate. Districts could have been either on the formula or held harmless from one to three years, and those variations affect the averages reported for this group. Even for those districts exclusively on the formula, the years in the analysis were during the phase-in so that only a percentage of state aid was being paid based on the SB 287 formula.[10]

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[8] The SB 287 formula has been implemented gradually beginning in the 2006-07 academic year and concluding in the 2011-12 academic year. The 2012-13 academic year will be the first year with the SB 287 formula fully phased in.

[9] This report discusses only traditional public school districts. Charter public schools have some minor differences from traditional public school districts in the calculation of their state aid.

[10] For those districts not held harmless, 15% of state aid in 2006-07 was based on the SB 287 formula. In 2007-08 it was 30%. In 2008-09 it was 44%.
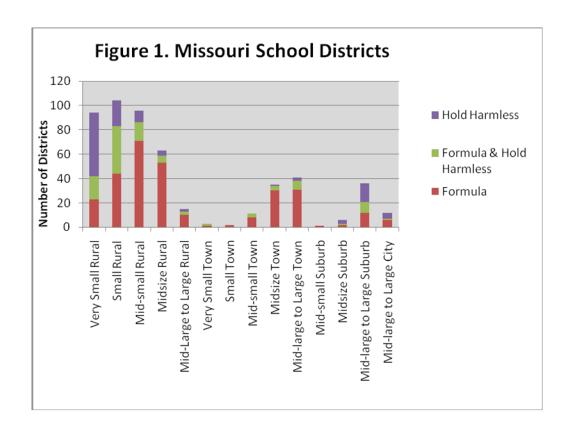
Knowing that the diversity of Missouri's districts is represented in all three of those categories, further descriptors have been included for size and locale so that various analyses may utilize these subcategories. (See Table 1.)

Table 1. Missouri Districts by Size and Locale

		Locale				
		City	Suburb	Town	Rural	**Total**
Size	Very small *(< 200)*	0	0	3	94	**97**
	Small *(201-400)*	0	0	2	104	**106**
	Mid-small *(401-750)*	0	1	11	96	**108**
	Midsize *(751-1900)*	0	6	35	63	**104**
	Mid-large to large *(≥ 1,901)*	12	36	41	15	**104**
		12	**43**	**92**	**372**	**519**

n = 519. Three districts with missing data were dropped from the cross-tabulation.

For size, districts were divided into quintiles based on 2010 average daily attendance. The labels are intended to characterize each group with the understanding that such labels are relative. The geographic descriptors are derived from the U.S. Department of Education's National Center for Education Statistics (NCES) locale codes based on population and proximity to an urbanized area. (See Figure 1.)

Figure 1. Missouri School Districts

Analysis of revenue and expenditures will focus on 2006 (the final year of the SB 380 formula) and 2009 (the peak year for state revenue under the SB 287 formula given withholds in 2010). Although 2007 was the first year of the phase in of the SB 287 formula, 2006 state aid established the foundation for the hold harmless calculation and continues to be the basis for state aid for any district whose calculation determines they are hold harmless. For districts whose calculation determines they are on the formula, the inclusion of 2006 with the "new formula" years captures any gain the district made between 2006 and 2007. Some of the analyses may incorporate other years as they are relevant to the issue under review. State revenue includes basic formula and Classroom Trust Fund. Local revenue includes local, county, and Prop C funds.

REVENUE

State Revenue

Districts have seen varying increases in state aid between 2006 and 2009, but discerning patterns in the data and making assertions when the data are subdivided into several categories is complicated. For example, some of the most sizable increases in total state aid for formula districts are found in only a few districts. In other words, it would be a poor analysis to highlight that mid-small to midsize suburbs have seen more than a 35% increase in state revenue since 2006 given that only represents three districts. (See Table 2.) In the tables that follow the number of districts *(n)* is included with each subcategory. The subcategories can be informative in some analyses of urban and rural, larger and smaller, etc.

In many cases differences in total revenue from year to year may be due to changes in enrollment; therefore, a per ADA revenue was calculated for a given year by dividing state revenue by the ADA for that year. An important caveat with reviewing the data in this way is that some districts that are funded under the hold harmless provision could argue that while they are receiving greater revenue per ADA than in 2006, the characteristics of their student population has changed to such a degree that the WADA calculation provides them with more revenue to support those students. Even without substantial changes in population, one might argue that the SB 287 formula's WADA is a better funding mechanism for meeting the needs of those students than they were provided through categorical aid in the SB 380 formula to serve those same students. However, there is not evidence to support such a theory. A comparison of growth in revenue per ADA to growth in revenue per WADA revealed only slight differences. Both measures showed higher rates of increase in revenue from 2006 to 2009 than the per ADA increase from 2003 to 2006.[11] (See Appendix B.)

The analyses that follow are straightforward: simply, did districts receive more state funding per ADA in 2009 than they did in 2006?

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[11] The pre-SB 287 years begin with 2003 to provide an equal timeframe for the comparison.

Table 2. Average Percentage Changes in State Revenue 2006 to 2009 – Formula Districts

	Total Percentage Increase				Per ADA Percentage Increase			
	Rural	Town	Suburb	City	Rural	Town	Suburb	City
Very small	19.8 *(n =23)*	17.2 *(n =1)*			21.6 *(n = 23)*	16.3 *(n =1)*		
Small	15.1 *(n =44)*	21.3 *(n = 2)*			17.6 *(n =44)*	18.5 *(n = 2)*		
Mid-small	15.9 *(n =71)*	14.8 *(n =8)*	35.4 *(n =1)*		19.0 *(n = 71)*	16.9 *(n = 8)*	27.3 *(n = 1)*	
Midsize	21.1 *(n =53)*	14.3 *(n =30)*	45.4 *(n =2)*		21.7 *(n =53)*	15.7 *(n =30)*	39.2 *(n =2)*	
Mid-large to large	24.2 *(n =10)*	23.3 *(n =31)*	31.9 *(n =12)*	23.8 *(n =6)*	19.8 *(n =10)*	22.4 *(n =31)*	27.3 *(n =12)*	23.8 *(n =6)*

Total n = 294[12]

Those districts on the formula saw the largest gains in their 2006 to 2009 state aid, but that is consistent with expectations since the formula was intended to raise districts below a minimum standard to the minimum standard. (See Table 2.)

For those districts that have moved from hold harmless status to being on the formula, or vice versa, 82 of 109 districts in this category are rural districts of varying sizes. (See Table 3.) This group includes districts that have been on the formula from one to three years and is the most difficult from which to draw conclusions. Overall, they did not see consistently greater or lesser differences in their average state aid between 2006 and 2009 than districts that have been exclusively hold harmless since 2007.

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[12] Districts with any missing data are automatically excluded from the analysis.

Table 3 . Average Percentage Changes in State Revenue 2006 to 2009 — Formula/Hold Harmless Districts

	Total Percentage Increase				Per ADA Percentage Increase			
	Rural	Town	Suburb	City	Rural	Town	Suburb	City
Very small	2.0 *(n =19)*	6.9 *(n =2)*			7.9 *(n =19)*	23.4 *(n =2)*		
Small	6.2 *(n =39)*				11.4 *(n =39)*			
Mid-small	7.5 *(n =15)*	11.4 *(n =3)*			7.7 *(n =15)*	14.5 *(n =3)*		
Midsize	10.1 *(n =6)*	9.0 *(n =4)*	21.4 *(n =1)*		6.8 *(n =6)*	13.4 *(n =4)*	14.8 *(n =1)*	
Mid-large to large	16.1 *(n =3)*	10.8 *(n =7)*	18.9 *(n =9)*	4.8 *(n =1)*	8.5 *(n =3)*	7.8 *(n =7)*	14.1 *(n =9)*	5.1 *(n =1)*

Total n = 109

For districts identified as hold harmless each year, one might assume that because their hold harmless amount, which is based on 2006 state aid, was greater than their calculated formula amount, their state aid per ADA would remain relatively constant over the four years from 2006 to 2009. However, because of the way hold harmless is calculated, that is not the case. Aspects of the hold harmless calculation have resulted in increases in revenue for districts receiving state aid based on this provision.

For those districts with fewer than 350 students, statute prevents revenue losses due to enrollment decline. Those districts' hold harmless calculation is based on their total 2006 state aid, not their per ADA state aid. The 52 very small rural hold harmless districts have an average aggregate increase in state aid of 6.6%. However, when looking at that gain on a per ADA basis, the increase is reported at 19.5%, nearly three times the rate of the aggregate growth. This is because as those districts lose students but maintain a consistent level of state aid, their state aid per ADA averages are higher. (See Table 4.)

Table 4 . Average Percentage Changes in State Revenue 2006 to 2009 – Hold Harmless Districts

	Total Percentage Increase				Per ADA Percentage Increase			
	Rural	Town	Suburb	City	Rural	Town	Suburb	City
Very small	6.6 *(n =52)*				19.5 *(n =52)*			
Small	4.7 *(n =21)*				11.8 *(n =21)*			
Mid-small	6.1 *(n =10)*				9.9 *(n =10)*			
Midsize	4.1 *(n =4)*	-0.4 *(n =1)*	11.2 *(n =3)*		4.9 *(n =4)*	10.6 *(n =1)*	12.6 *(n =3)*	
Mid-large to large	4.4 *(n =2)*	7.3 *(n =3)*	12.4 *(n =15)*	-3.9 *(n =5)*	3.4 *(n =2)*	6.2 *(n = 3)*	15.6 *(n =15)*	12.4 *(n =5)*

Total n = 116

For those districts with more than 350 students, the final hold harmless payment amount is based on WADA. While a calculation based on ADA or enrollment would be a logical way to incorporate enrollment growth in those districts, WADA is a feature of the SB 287 formula that takes into account student characteristics. Categorical state aid for students with special needs or and students with low income was part of the SB 380 formula and is captured in the overall 2006 state aid.

Another feature of the SB 287 formula which has been included in the hold harmless calculation is the DVM. This variable allows the total state aid to be increased by as much as 10.4% to reflect the median wage data from the metropolitan area, micropolitan area, or county in which the district is located.[13] Because the DVM was included to acknowledge wage differentials across the state and because salaries and benefits represent the largest share of a district's budget, it would be reasonable to determine whether there is a strong relationship between the DVM and a district's teacher and administrator salaries. An analysis of the DVM and salaries revealed a moderate correlation for all districts (between .5 and .6). When disaggregated by locale code, the districts in the cities and suburbs have a stronger correlation between the DVM and average salaries than do the districts in towns and rural areas. (See Appendix C for correlation coefficients.)

Because the DVM has an artificial floor of 1.0, an additional analysis was run using only those districts with a DVM greater than 1.0 to determine whether not knowing the true DVM of those lower than 1.0 was resulting in a weaker correlation coefficient for districts in towns and rural areas. While there were small differences in the coefficients, the

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[13] In statute, there is a floor of 1.0 for the DVM. There is no ceiling on the DVM. The highest DVM that has been applied in the calculation to date is 1.104.

pattern remained consistent: the DVM is more strongly correlated with salaries in the cities and suburbs than in the towns or rural areas.

The DVM was phased in over a three-year time period from 2007 to 2009.[14] With each update to that variable—provided WADA increased or held steady—the total state aid payment increased for hold harmless districts with a DVM greater than 1.0.

Once the DVM was phased in, the statute states that the DVM is to be based on data from the "fourth year preceding the payment year."[15] In order to determine the fourth preceding year for each payment year, the DVM would be recalculated annually. Despite this, the DVM has not been recalculated since the initial calculation. If statute were followed, those districts with a DVM greater than 1.0 could see slight fluctuations in their DVM resulting in increases or decreases in their overall state aid. The statute also states that the DVM shall be recalculated with every decennial census to incorporate any updates to the definition or boundaries of micropolitan and metropolitan areas.

All funding categories of districts have increased their average state aid per ADA from 2006 to 2009, and those increases are greater than their per ADA gains between 2003 and 2006. (See Table 5.)

For all of the 116 hold harmless districts in this report, the net difference in 2006 and 2009 state aid was a decrease of $2,090,088 but only because ADA in those districts decreased by nearly 13%. (For totals in state aid increases, see Appendix D.) State aid per ADA in hold harmless districts was $580 higher in 2009 than in 2006.

The average actual dollar amount difference in hold harmless districts between 2006 and 2009 is -$18,018. However, the fact that the average actual dollar amount is a negative number is a reflection of sharply declining enrollment in Kansas City Public School and St. Louis Public Schools. In fact only 20 of 116 districts with hold harmless status had a negative overall dollar change from 2006 to 2009, and those that did had declining enrollments during that time. Overall dollar decreases for Kansas City and St. Louis were $17.8 million and $32.2 million respectively. The next highest decrease was $64,000. With Kansas City and St. Louis being extreme outliers, the data may be more accurately represented by excluding them from this particular analysis. Of the 114 remaining districts with hold harmless status, the average difference in total state aid dollars was an increase of $420,251.

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[14] Section 163.031, RSMo.
[15] Section 163.011, RSMo., subsection 5.

Table 5. Changes in State Revenue

		2003 to 2006			
	n	Average actual dollar	Average dollar per ADA	Average percentage	Average percentage per ADA
Formula Districts	296	$335,673	$151	6.9	5.4
Formula/Hold Harmless Districts	109	$692,907	$296	8.8	9.9
Hold Harmless Districts	116	$188,838	$333	5.9	10.6
Hold Harmless without Kansas City 33 and St. Louis Public Schools	114	$358,989	$340	6.1	10.8

		2006 to 2009			
	n	Average actual dollar	Average dollar per ADA	Average percentage	Average percentage per ADA
Formula Districts	296	$857,498	$573	19.0	20.1
Formula/Hold Harmless Districts	109	$567,314	$358	7.9	10.3
Hold Harmless Districts	116	$-18,018	$580	6.5	14.5
Hold Harmless without Kansas City 33 and St. Louis Public Schools	114	$420,251	$585	7.0	14.5

Local Revenue

Under the current formula, local effort is subtracted from the district total to determine state aid.

*[(WADA x adequacy target) x DVM] – **Local effort** = State Aid*

However, increases in local revenue do not cause a decrease in state aid. The current formula calculates local effort using 2004 assessed valuation.[16] Even as districts' assessed valuations are updated and more local revenue is generated, by statute this is a static variable in the formula.[17] The local revenue that districts actually receive is from local revenue collections based on current assessed valuation.

Once districts are classified as hold harmless for a given year, local effort is captured in their state aid for 2006 as it was included in the SB 380 formula. Therefore, the impact of a using a set assessed valuation in SB 287 is best examined in districts that have been exclusively on the formula since implementation.

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[16] Section 163.011, subsection 10.

[17] The assessed valuation can be adjusted downward if a district's assessed valuation drops below the 2004 level. Also, all local effort calculation amounts are fixed except for revenue from fines and changes to collector and assessor fees.

Table 6. Changes in Local Revenue

		2003 to 2006			
	n	Average actual dollar	Average dollar per ADA	Average percentage	Average percentage per ADA
Formula Districts	296	$1,510,681	$549	17.6	16.2
Formula/Hold Harmless Districts	109	$1,717,576	$691	16.5	18.3
Hold Harmless Districts	116	$1,659,563	$1,083	16.4	22.4
Hold Harmless without Kansas City 33 and St. Louis Public Schools	114	$1,443,435	$1,089	16.6	22.5

		2006 to 2009			
	n	Average actual dollar	Average dollar per ADA	Average percentage	Average percentage per ADA
Formula Districts	296	$1,092,214	$499	12.0	13.0
Formula/Hold Harmless Districts	109	$1,215,778	$723	12.4	15.0
Hold Harmless Districts	116	$1,470,940	$1,085	8.1	16.0
Hold Harmless without Kansas City 33 and St. Louis Public Schools	114	$1,555,391	$1,054	8.2	15.5

Subdivided by size and locale, the eighteen mid-large to large suburban and city districts clearly represent the majority of revenue generated locally by districts on the formula. (See Table 7.) The twelve suburban districts have an average difference in local revenue of $20 million between 2004 and 2009. The sum total for all formula districts is a difference of $686,524,291 in local revenue between 2004 and 2009. (For local revenue totals, see Appendix E.) That $685 million is not counted toward local effort in the calculation of state aid payments.

Table 7. Formula Districts: Average Assessed Valuation and Average Local Revenue

	n	Average AV2004[18]	Average AV2009	Average Local Revenue 2004	Average Local Revenue 2009
Very small rural	23	$7,830,558	$10,027,273	$482,156	$605,131
Small rural	44	$15,112,196	$19,242,182	$1,062,452	$1,267,117
Mid-small rural	71	$28,124,345	$36,438,180	$1,924,369	$2,365,444
Midsize rural	53	$55,206,601	$72,218,589	$3,496,932	$4,515,604
Mid-large to large rural	10	$177,058,770	$256,140,562	$10,964,724	$15,971,674
Very small town	1	$4.186,105	$5,470,457	$257,778	$324,075
Small town	2	$17,470,644	$25,328,858	$995,611	$1,358,203
Mid-small town	8	$30,833,380	$35,787,141	$2,165,939	$2,448,299
Midsize town	30	$79,967,362	$103,159,478	$5,120,869	$6,267,217
Mid-large to large town	31	$193,671,103	$255,683,317	$11,737,395	$15,242,631
Mid-small suburb	1	$46,189,253	$60,177,960	$2,932,176	$3,845,903
Midsize suburb	2	$122,702,264	$165,858,105	$7,304,357	$8,901,955
Mid-large to large suburb	12	$931,078,938	$1,328,746,484	$57,000,464	$77,041,560
Mid-large to large city	6	$1,264,523,051	$1,592,855,851	$71,699,469	$96,007,443

In the *Committee for Educational Equality v. State of Missouri* decision, the use of the 2004 assessed valuation in the state aid calculation was not unanimously supported by members of the Court. While the majority opinion supported the use of the 2004 assessed valuation as "permissible", it was in the context of the following statement:

> "The legislature's reliance on the [Tax] Commission's data was permissible because it was a rational attempt toward the legitimate end of funding Missouri's free public schools. Although judicial review of legislative enactments is fundamental to our system of checks and balances, hindsight evaluation of the quality of data on which the legislature relied is not appropriate in this case. Assessing the wisdom of the legislature's reliance on the Commission's data would invade the legislature's deliberative process and violate the separation of powers between the judicial and legislative branches of government".[19]

The previous statement is also referencing the plaintiffs' claims of inequity across the state in how property value is assessed.

The funding statute does not include any timeframe under which the assessed valuation data will be updated. Barring any change to the statute, local effort will be calculated on 2004 assessed values indefinitely.
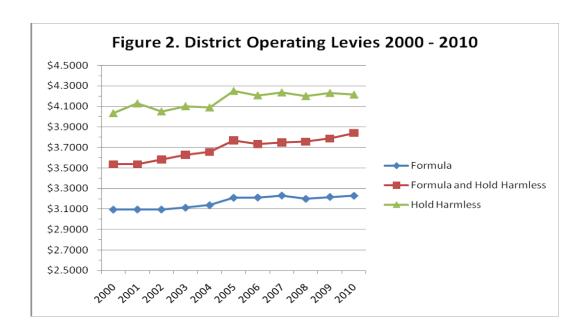
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[18] The fixed assessed valuation on which the local effort is calculated under the SB 287 formula.
[19] *Committee for Educational Equality v. State of Missouri (2009)*.

For the purposes of calculating state aid, $3.43 is the performance levy used. However, some districts may have an operating levy as low as $2.75 or higher than $3.43 as long as they are within the constraints of the law. Anything greater than $3.43 is additional local revenue not subtracted from the overall revenue needed to determine the amount of state aid.

On average formula districts have a levy below the set performance levy. (See Figure 2.) For those under $3.43, state aid is being calculated as if those districts are bringing in the local revenue from a $3.43 levy.

Other than a slight drop in operating levies between 2007 and 2008, on average formula districts have not reduced their tax levy subsequent to an increase in local revenue.

Figure 2. District Operating Levies 2000 - 2010

EXPENDITURES

Districts funded under the formula had the highest increases in state aid from 2006 to 2009, but their changes in expenditures were comparable to all other districts. Overall the greatest increase in per ADA expenditures between 2006 and 2009 was for districts that were held harmless. As noted in the previous section on revenue, some hold harmless districts are very small districts where the state aid payment is based on a the total state aid amount from 2005-06 rather than the per ADA amount. This could make it appear as though per ADA expenditures have increased when in reality what is reflected in the statistic is the decrease in enrollment resulting in both more revenue and more expenditure per ADA. (See Appendices F to H for a breakdown of changes in expenditures by district subcategories.)

Changes in average teacher and administrator salaries would not be as sensitive to fluctuations in enrollment. Both teachers' and administrators' salaries have seen modest increases since the implementation of the SB 287 formula regardless of whether they were funded on the formula, held harmless, or both between 2006 and 2009.

Professional development expenditures have increased by averages of more than 30% across all of the categories under which districts are funded. Pinpointing the rationale for the increased expenditure is complicated by the reduction in the state contribution to critical needs professional development funding from a high of $20 million in FY2007 and FY2008 to a reduction to $15 million in FY2009.[20]

Table 8. Percentage Change in District Expenditures 2006-2009

	Average Expenditure Per ADA Change	Average Teacher Salary Change	Average Administrator Salary Change	Average Professional Development Expenditure Change
Formula	17.0	10.8	9.3	32.8
Formula/Hold Harmless	17.8	10.7	11.1	33.7
Hold Harmless	19.3	10.1	8.1	32.1

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[20] The most significant reductions to the critical needs professional development fund happened after FY2009. A more detailed analysis of professional development revenue and expenditures is forthcoming in a report on critical needs professional development funding being prepared for the Joint Committee on Education by the executive director.

LIMITATIONS

The complexities of education funding are a challenge to analyze under any circumstances, and the diversity in Missouri's districts in terms of wealth, geography, and student population confound that challenge. Though disaggregating data by subgroups can illuminate some issues that may be unique to certain types of districts, extreme caution should be exercised so as not to place too much emphasis on distinctions in averages across subgroups, particularly when a subgroup contains a very small number of districts.

The degree to which there have been changes in funding and expenditures may be obscured by reporting averages, even when broken into subcategories. Ranges for both revenue and expenditures can be very broad.

The SB 287 formula was designed so that districts would increase state revenue at different rates depending on how far their 2006 state aid levels were from the target deemed necessary to provide an adequate level of education funding. Discrepancies in state aid gains across districts funded under the formula or between formula districts and those held harmless should not be interpreted as inequitable on face value.

In addition, this report includes a limited number of expenditure categories: per ADA expenditures, average teacher salary, average administrator salary, and professional development. Additional categories of expenditures (e.g., transportation) could be included in further analysis.

Data DESE collects from districts is fluid. It is constantly being updated as new information becomes available; therefore, any analysis reflects the data available at the time of the analysis.

SUGGESTIONS FOR FURTHER REVIEW

Though this report attempts to answer many of the questions around the impact of the SB 287 formula, there are many questions that remain and could be the basis for further review.

- Review the "highest of previous three years" WADA as the basis for the formula calculation. As students move from district to district or from districts to charter schools, the State could be making a significant number of duplicate state aid payments.
- Evaluate funding disparities within districts. Determine whether funds are distributed within districts according to student characteristics identified for additional weight in the funding formula.[21]

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[21] This review could be limited by the available data.

- Examine spending practices of the highest achieving districts independent of local wealth. While connections between expenditures and achievement are very complex, the review could begin by analyzing spending priorities in the highest achieving districts.
- Reexamine patterns in revenue distribution once the formula has been fully phased.
- Review charter school funding.

CONCLUSION

The SB 287 funding formula has increased revenue for those districts most underfunded under the previous formula. Taking into account student characteristics, expenditures in high performing districts, and regional wage differentials, districts are now funded under a philosophy that establishes a minimum level of state aid needed to provide an adequate education. Even those districts funded under the hold harmless provision have seen increases in their state aid per ADA by the inclusion of SB 287's DVM in the hold harmless calculation.

Districts have benefitted from the SB 287 in various ways. There are a number of different arguments that could be made for which districts have benefitted most under SB 287. Very small hold harmless districts have been protected from revenue loss due to declining enrollment. Districts on formula but with substantive gains in local revenue and/or high local operating levies are able to bring in local revenue that does not count against their local effort in the formula calculation. Any district with a disproportionate number of ELL, FRL, or IEP students may draw slightly more state revenue through weighting of those characteristics than through the categorical aid under the previous formula.

Some districts have benefitted from the original intent of the formula, to provide an adequate level of funding for a quality education. Other districts have benefitted from the additional provisions such as the hold harmless designation and the DVM.

Appendix A – School Funding Models

Basics of Funding

Funding inequities may not inherently disadvantage students in terms of outcomes. In school finance it is possible that what is necessary and what is perceived as fair are two separate things, yet we emphasize the latter as if it were the former (Rice, 2004). Financing schools by acknowledging different levels of student need is becoming a standard practice in education finance (Wood, 2007a). Adequacy-based foundation formulas set a minimum threshold but do not necessarily decrease inequity if wealthy districts choose to spend well above the minimum (Hanushek & Lindseth, 2009).

Forty states use a foundation formula for funding public schools. If hybrid models with a foundation element are included, there are 45.[22] (Verstegen & Jordan, 2009). There are four common adequacy-based funding models: cost function/statistical analysis, professional judgment, successful schools, and evidence based (Hadderman, 2001; Odden, Goetz, & Picus, 2008; Wood, 2007a). Of the four types of funding models, cost estimates show professional judgment is by far the most expensive while a cost function model is the least expensive (Hanushek, 2007; Wood, 2007b). The cost function approach supports the use of outcome data in a regression model to determine how much funding is needed to reach certain achievement levels while controlling for demographics (Hanushek & Lindseth, 2009). The successful schools model typically falls in between those two in terms of cost (Wood, 2007b).

The successful schools model determines adequate levels of finance based on a state's most successful schools. One issue with a successful schools model that has been noted by researchers is that "successful districts" are often selected without consideration of demographic characteristics up front (Hanushek & Lindseth, 2009). The problem this creates is that high-achieving districts are strongly correlated with high wealth. If those districts spend more because they can and not because they need to, then what is determined to be necessary to achieve adequacy will be skewed. Missouri's approach to addressing this issue when identifying performance districts was to eliminate the top five percent and the bottom five percent of districts ranked by current operating expenditures per ADA.

> *Despite the excellent work of many educational economists and scholars, it remains the case that school funding models are fraught with assumptions because we still don't know to a certainty how to construct a system that meets the unique needs of every student, nor do we know to a certainty how to accurately determine the true cost of delivering those services (Pittner, Carleton, & Casto, 2010, p. 122).*

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[22] The remaining states use district power equalization systems, full state funding, or flat grants.

Weighting for Student Needs

Most states provide additional funding for students with low income and for English language learners (ELL). For students with low income, most states use eligibility for free or reduced-price lunch (FRL) as the proxy. As of 2007, 34 states provided additional funding for FRL, and 37 states provided additional funding for ELL (Verstegen & Jordan, 2009). Weights for FRL range from an additional 5% (Mississippi) to an additional 100% (Minnesota). Minnesota funds at 100% weight for free lunch and 50% for reduced lunch. Texas adds additional funding weight for pregnant students. New York and South Carolina add additional weight for students at-risk of not meeting learning standards.

Delaware and Alaska fund ELL with grants. Most other states that provide additional funding for ELL use a weight in their formula. ELL weights range from 10% (Texas) to 50% (Oregon). Nevada, Montana, and South Dakota provide no additional funding for ELL (Verstegen & Jordan, 2009).

Many states also add weight in their funding formula for students on individualized education plans (IEP). Besides weights, other ways of allowing for the extra cost of educating students on IEPs is cost reimbursement, by instructional unit, or with census data. Rhode Island is the only state that does not incorporate additional funding for students with special needs.

One concern that persists is whether weighting by student needs matters if once the money gets to the district, the district does not try to distribute funding by those same weights and student needs in different schools? (*Models for Ohio school funding*, 2009). Even with the "weights" assigned to higher need students, it cannot always be confirmed whether that allocation is being used proportionately to support those students (Roza, Guin, & Davis, 2008). Some question whether states should restrict the use of funds so that they can only be used for what they were intended. For example, Washington's poverty weight requires that extra funding is to be used only at high poverty schools (Roza et al., 2008).

Weights in formulas rarely have a scientific or research basis. They are motivated by other states' practices and are arbitrary to a degree causing some to compare it to the professional judgment method in this respect (Hanushek & Lindseth, 2009). "With no basis or evidence for determining weights in the weighted student funding model, the process is likely to be politicized and funding levels to be determined subjectively rather than calculated in a logical manner" (*Models for Ohio school funding*, 2009, p. 4).

History of litigation

Prior SB 380 (1993), Missouri had among the worst equity ratings in the country by several measures (Ko, 2006). The SB 380 formula attempted a remedy for this inequity but was consistently underfunded (Podgursky et al., 2008). Achieving equity by "leveling

up" was never practical because the cost would be too great (Hanushek & Lindseth, 2009).

In the past 40 years, 45 states have entered into funding litigation (Glenn, 2009). Adequacy litigation first emerged around 1990 and has been dubbed "Equity II", meaning the second generation of school finance lawsuits. The crux of the adequacy argument is whether funding is sufficient to meet constitutional mandates (Dishman & Redish, 2010; Glenn, 2009; Guthrie, 2008; Hanushek & Lindseth, 2009). Most all southern states have participated in adequacy litigation though most adequacy suits have found in favor of the defendants (the states)(Dishman & Redish, 2010; Guthrie, 2008). Kentucky is often recognized as having the first adequacy litigation in which the plaintiffs were successful. (Dishman & Redish, 2010; Lefkowitz, 2004; McFadden, 2006).

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Appendix B – ADA vs. WADA

Changes in State Aid – ADA and WADA

	2003 to 2006		2006 to 2009	
	n	Average percentage per ADA	Average percentage per ADA	Average percentage per WADA
Formula Districts	296	5.4	20.1	20.5
Formula/Hold Harmless Districts	109	9.9	10.3	11.4
Hold Harmless Districts	116	10.6	14.5	16.4
Hold Harmless without Kansas City 33 and St. Louis Public Schools	114	10.8	14.5	16.5

Appendix C – Correlation Coefficients:
Average Salaries and DVM

Correlation between Average Salaries and DVM – All Districts

	All Districts (n=519)	City (n=12)	Suburb (n=43)	Town (n=91)	Rural (n=373)
	DVM	DVM	DVM	DVM	DVM
Teacher Salary 2006	.542**	.662*	.520**	.369**	.254**
Administrator Salary 2006	.548**	.525	.575**	.417**	.299**
Teacher Salary 2010	.571**	.716**	.565**	.416**	.288**
Administrator Salary 2010	.504**	.636*	.533**	.440**	.240**

* p<.05
**p<.01

Correlation between Average Salaries and DVM – Districts with DVM > 1.0

	All Districts (n=351)	City (n=12)	Suburb (n=43)	Town (n=67)	Rural (n=229)
	DVM	DVM	DVM	DVM	DVM
Teacher Salary 2006	.524**	.662*	.520**	.396**	.266**
Administrator Salary 2006	.538**	.525	.575**	.366**	.319**
Teacher Salary 2010	.545**	.716**	.565**	.416**	.285**
Administrator Salary 2010	.508**	.636*	.533**	.421**	.269**

* p<.05
**p<.01

Appendix D – Sum of Dollar Change in State Revenue

Total Dollar Change in State Revenue 2006 to 2009

	n	Sum of Change in State Aid
Formula Districts	296	$253,819,490
Formula/Hold Harmless Districts	109	$61,837,237
Hold Harmless Districts	116	$-2,090,088
TOTAL	521	$313,566,639

Appendix E – Sum of Dollar Change in Local Revenue (Formula Districts)

Total Local Revenue Dollar Change 2004 to 2009– Formula Districts

	n	
Very small rural	23	$2,828,412
Small rural	44	$9,005,282
Mid-small rural	71	$31,316,315
Midsize rural	53	$53,989,611
Mid-large to large rural	10	$50,069,504
Very small town	1	$2,828,412
Small town	2	$725,185
Mid-small town	8	$2,258,882
Midsize town	30	$34,390,424
Mid-large to large town	31	$108,662,340
Mid-small suburb	1	$913,727
Midsize suburb	2	$3,195,195
Mid-large to large suburb	12	$240,493,159
Mid-large to large city	6	$145,847,843
TOTAL	294	$686,524,291

Appendix F – Expenditure Changes in Formula Districts by Subcategories

Percentage Change in Per ADA Expenditure 2006-2009 – Formula Districts

	Rural	Town	Suburb	City
Very small	17.6 *(n=23)*	29.7 *(n=1)*		
Small	16.6 *(n=44)*	10.5 *(n=2)*		
Mid-small	17.8 *(n=71)*	11.4 *(n=8)*	12.7 *(n=1)*	
Midsize	16.4 *(n=53)*	15.6 *(n=30)*	24.4 *(n=2)*	
Mid-large to large	20.4 *(n=10)*	17.7 *(n=31)*	18.4 *(n=12)*	18.0 *(n=6)*

Total n = 294

Percentage Change in Professional Development Expenditures 2006-2009 – Formula Districts

	Rural	Town	Suburb	City
Very small	18.1 *(n=23)*	15.8 *(n=1)*		
Small	26.3 *(n=44)*	28.5 *(n=2)*		
Mid-small	20.3 *(n=71)*	26.0 *(n=8)*	73.8 *(n=1)*	
Midsize	55.2 *(n=53)*	35.3 *(n=30)*	158.0 *(n=2)*	
Mid-large to large	26.3 *(n=10)*	38.9 *(n=31)*	46.3 *(n=12)*	17.3 *(n=6)*

Total n = 294

Percentage Change in Average Teacher Salary 2006-2009 – Formula Districts

	Rural	Town	Suburb	City
Very small	13.7 *(n=23)*	18.5 *(n=1)*		
Small	11.1 *(n=44)*	15.9 *(n=2)*		
Mid-small	11.0 *(n=71)*	8.2 *(n=8)*	18.6 *(n=1)*	
Midsize	10.0 *(n=53)*	9.2 *(n=30)*	14.7 *(n=2)*	
Mid-large to large	10.6 *(n=10)*	10.7 *(n=31)*	11.3 *(n=12)*	11.0 *(n=6)*

Total n = 294

Percentage Change in Average Administrator Salary 2006-2009 – Formula Districts

	Rural	Town	Suburb	City
Very small	17.4 *(n=23)*	26.1 *(n=1)*		
Small	9.2 *(n=44)*	-13.8 *(n=2)*		
Mid-small	7.8 *(n=71)*	4.5 *(n=8)*	11.5 *(n=1)*	
Midsize	8.0 *(n=53)*	9.2 *(n=30)*	22.3 *(n=2)*	
Mid-large to large	11.0 *(n=10)*	9.5 *(n=31)*	10.4 *(n=12)*	8.4 *(n=6)*

Total n = 294

Appendix G – Expenditure Changes in Formula/Hold Harmless Districts by Subcategories

Percentage Change in Per ADA Expenditures 2006-2009 – Formula/Hold Harmless Districts

	Rural	Town	Suburb	City
Very small	20.6 *(n=19)*	11.4 *(n=2)*		
Small	18.9 *(n=39)*			
Mid-small	16.8 *(n=15)*	17.5 *(n=3)*		
Midsize	14.5 *(n=6)*	11.3 *(n=4)*	7.0 *(n=1)*	
Mid-large to large	22.5 *(n=3)*	17.3 *(n=7)*	16.7 *(n=9)*	12.7 *(n=1)*

Total n = 109

Percentage Change in Professional Development Expenditure 2006-2009 – Formula/Hold Harmless Districts

	Rural	Town	Suburb	City
Very small	11.6 *(n=19)*	93.7 *(n=2)*		
Small	28.4 *(n=39)*			
Mid-small	89.4 *(n=15)*	103.1 *(n=3)*		
Midsize	12.1 *(n=6)*	45.9 *(n=4)*	5.0 *(n=1)*	
Mid-large to large	-5.5 *(n=3)*	15.5 *(n=7)*	16.5 *(n=9)*	12.5 *(n=1)*

Total n = 109

Percentage Change in Average Teacher Salary 2006-2009 – Formula/Hold Harmless Districts

	Rural	Town	Suburb	City
Very small	14.3 *(n=19)*	6.4 *(n=2)*		
Small	10.1 *(n=39)*			
Mid-small	9.8 *(n=15)*	7.9 *(n=3)*		
Midsize	10.9 *(n=6)*	7.2 *(n=4)*	9.4 *(n=1)*	
Mid-large to large	12.6 *(n=3)*	11.1 *(n=7)*	9.9 *(n=9)*	7.1 *(n=1)*

Total n = 109

Percentage Change in Average Administrator Salary 2006-2009 – Formula/Hold Harmless Districts

	Rural	Town	Suburb	City
Very small	18.0 *(n=19)*	-49.8 *(n=2)*		
Small	11.5 *(n=39)*			
Mid-small	14.1 *(n=15)*	9.0 *(n=3)*		
Midsize	10.2 *(n=6)*	8.3 *(n=4)*	7.6 *(n=1)*	
Mid-large to large	14.0 *(n=3)*	9.3 *(n=7)*	7.2 *(n=9)*	5.3 *(n=1)*

Total n = 109

Appendix H – Expenditure Changes in Hold Harmless Districts by Subcategories

Percentage Change in Per ADA Expenditure 2006-2009 – Hold Harmless

	Rural	Town	Suburb	City
Very small	21.8 *(n=52)*			
Small	18.9 *(n=21)*			
Mid-small	14.0 *(n=10)*			
Midsize	16.9 *(n=4)*	18.0 *(n=1)*	-2.8 *(n=3)*	
Mid-large to large	20.8 *(n=2)*	12.5 *(n=3)*	19.7 *(n=15)*	24.6 *(n=5)*

Total n = 116

Percentage Change in Professional Development Expenditures 2006-2009 –Hold Harmless

	Rural	Town	Suburb	City
Very small	34.7 *(n=52)*			
Small	33.6 *(n=21)*			
Mid-small	39.8 *(n=10)*			
Midsize	46.3 *(n=4)*	77.7 *(n=1)*	30.9 *(n=3)*	
Mid-large to large	30.0 *(n=2)*	-10.3 *(n=3)*	15.7 *(n=15)*	38.3 *(n=5)*

Total n = 116

Percentage Change in Average Teacher Salary 2006-2009 –Hold Harmless Districts

	Rural	Town	Suburb	City
Very small	10.4 *(n=52)*			
Small	11.9 *(n=21)*			
Mid-small	8.7 *(n=10)*			
Midsize	7.7 *(n=4)*	6.1 *(n=1)*	8.0 *(n=3)*	
Mid-large to large	11.0 *(n=2)*	13.4 *(n=3)*	8.3 *(n=15)*	8.9 *(n=5)*

Total n = 116

Percentage Change in Average Administrator Salary 2006-2009 –Hold Harmless Districts

	Rural	Town	Suburb	City
Very small	4.1 *(n=52)*			
Small	14.6 *(n=21)*			
Mid-small	10.0 *(n=10)*			
Midsize	7.4 *(n=4)*	11.2 *(n=1)*	3.9 *(n=3)*	
Mid-large to large	10.4 *(n=2)*	11.9 *(n=3)*	10.0 *(n=15)*	12.1 *(n=5)*

Total n = 116