



**Education Policy and Finance Project for Ohio:  
Investments to Improve Student Performance  
Human Services Policy Center, University of Washington<sup>1</sup>  
Round 2 Analysis -- Executive Summary  
Working Draft per February 25, 2007**

## **I. Purpose**

The purpose of this project is to assist education policy leaders at the state and district level to explore the cost and impact of alternative options of directing investments to improve student performance. The Human Services Policy Center (HSPC) has developed a set of tools to assist this process, including a web-based policy guide which presents a structured set of alternative policy specifications from which bottom-up estimates of costs can be conducted, considering tradeoffs among alternative approaches; an externally-reviewed summary of the research literature linking individual educational investments to student performance; and a computer simulation model which generates state and district cost estimates – by grade level, student category and district category – for each policy scenario. HSPC conducts an iterative, interactive process, with state and district teams each meeting multiple times, considering research findings and local conditions, specifying multiple options in each of two rounds. Analysis is provided to the teams comparing their specified options for each of the rounds, including changes in total educational costs, per-student cost by category (general education, English Language Learner, Special Education), school type (concentrated-poverty vs. other), grade level (elementary, middle, secondary), and the percent of total expenditures by each type of district. A central feature of the HSPC approach is to develop cost estimates for meeting the needs of different types of students that reflect clearly identified, research-based education policies. These policy-based estimates can be used both for estimating funding levels and for incorporating in funding formulas.

## **II. Ohio Policy Specifications, Round 2**

### **A. State Level Policy Specifications**

#### ***Early Learning***

The Ohio team based their policy specifications for Early Learning on a pilot version of the recommendations of School Readiness Solutions Group (SRSG), presented in August of 2006. The key strategies included: (a) creating a *State Board of Early Learning*; (b) *providing funding for voluntary full-day kindergarten*. HSPC's model assumes that voluntary full-day kindergarten will be utilized by the entire eligible student population, since most parents currently choose to participate/ (c) an *Early Learning Initiative (ELI) Expansion Pilot*. This would test some of the major recommendations of the SRSG for increasing access to high quality early learning experiences by: adding 6,000 slots for children age 3-5 who are in the family income range of

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100-250% of the federal poverty level; adding 2,000 slots to provide ELI services to infants and toddlers, across the income range of 0-250% poverty; adjusting costs per slot to reflect SRSG requirements such as lower child:adult ratios and higher teacher qualifications and compensation. The team considers it essential to have a thorough evaluation of the pilot

### ***Student-Teacher Ratios***

The Ohio state team specified target ratio of 25:1 for middle and high-school general-education students, and lower ratios for students in concentrated poverty schools and for elementary and kindergarten students. The Ohio team declined to specify ratios for reading and math specialists in high school – believing that those resources are best concentrated at lower grade levels.

The team felt that they lacked the knowledge base to appropriately specify ratios for LEP and Special-Ed students – they chose instead to ask HSPC to model current policies, which we have done to the best of our ability with available data.

### ***Student-Aide Ratios***

The research on student aides has not shown any significant effect on student outcomes by adding aides, particularly as children age. The Ohio state team therefore chose to only include aides for kindergarten classes. Aides were assigned lower student-staff ratios in concentrated poverty schools, remaining consistent with the differential policies specified in the student-teacher ratio section. Again, the team felt that they lacked the necessary expertise to identify ratios for LEP and Special-Ed students “from scratch”, and instead chose to ask HSPC to model current policies.

### ***Student Contact Time and Paid Teacher Days***

The Ohio team explored a variety of options for the length of the school year, involving (1) assuring that instructional days were not encroached upon by clearly funding days for teacher professional development, student assessment, parent meetings and administrative tasks. This produced a range from 188 to 205 contract days per year. One option provided additional days of instruction for students in concentrated poverty schools. Another major education policy approach explored by the Ohio team was to move away from a traditional school year, and operate year round. This approach would include assessments and feedback three times a year, and opportunities for either remedial or enrichment instruction during the breaks between the three teaching/assessment periods.

### ***Professional Development***

Professional Development consists of processes and activities that attempt to improve knowledge, skills and attitudes, of teachers, administrators and related staff, so that they are better able to respond to external demands and improve educational practice and performance, in order to improve student performance. The Ohio team chose to pursue a professional development strategy that includes multiple components: 5-10 days per year of development aligned with school plans; coaching, mentoring of beginning teachers (first three years); and common planning time. Certain limitations are placed upon these programs in order to better focus professional development on staff that would benefit most, while keeping costs under control.

### ***Teacher Qualifications & Pay***

The Ohio team chose to use a base starting salary of \$30,000. This salary is slightly higher than the current statewide average entry-level salary. Finally, the team specified a real annual salary increment of 4% to accommodate increases in experience, education, and performance. The Ohio team also chose to include a salary pool for recruitment and retention of high-demand teacher categories, calculated as 25% of starting salary for 30% of the teacher workforce. This salary pool is intended to provide funds for recruiting in-demand teachers, such as those in the math & science areas, while also allowing for flexibility at the district level. This flexibility is based on the assumption that premiums will not be needed for every high-demand category every year, and was calculated on a percent of teachers substantially lower than the percent currently in high-demand categories. It is thus a less expensive approach than a fixed differential pay rate for every teacher within high demand categories.

### ***Staff Benefits***

The Ohio state team specified benefits for teachers and other staff at 30% of base salary, consistent with current practice in Ohio.

### ***Student Tutoring***

The Ohio team specified investment in all types of tutoring except for privately-provided tutoring. They chose to have staff tutors work with concentrated and non-concentrated schools – with lighter caseloads for concentrated-poverty schools – complemented by bringing in volunteer tutors and encouraging peer tutors as well.

### ***Student & Family Supports***

The Ohio team specified a set of student and family supports based on the recommendations of a professional judgment team in Kansas that examined the issue in depth. This approach includes the following student to staff ratios of 127:1 for elementary students, 113:1 for middle school and 144:1 for high school students. These ratios do not necessarily represent any specific type of student support staff; state or local decisions may be made regarding what specific positions are used. According to the NCES Condition of Education report (2004), the most common student support staff are school counselors, speech therapists, nurses, and special-education aides. Student support staff can also include psychologists, parent/family liaisons, social workers, or others, but normally do not include physical or occupational therapists. The Ohio team chose to apply the same staffing levels for both concentrated and non-concentrated poverty schools.

### ***Other Staff***

The Policy Guide requests that users specify salary and ratios for principals, assistant principals, and librarians. The Ohio team specified low ratios for principals/assistant principals and librarians, plus funds for hiring a technology coordinator, an attendance officer, and an EMIS coordinator for each school.

### ***Policy Differences for Concentrated Poverty Schools***

The major differences specified by the Ohio team to meet the needs of students in concentrated poverty settings were smaller class size and more days of instruction. Student:teacher ratio specifications were 2-3 students per teacher lower for concentrated poverty schools (15 vs. 18 at elementary level, 20 vs. 22 for middle and 22 vs. 25 for high school). Additional kindergarten

aides were also provided for concentrated poverty schools. One set of policy scenarios increased the length of the traditional school year by 12 days only for concentrated poverty schools. Greater student tutoring resources were also provided in concentrated poverty schools than in others. Teacher pay and student and family supports were not varied by poverty concentration.

### **Alternative Policy Scenarios**

The state team specified eight different scenarios to explore the cost and allocative differences among varying strategies. To simplify the presentation, we have selected four scenarios which exemplify the major policy differentiations indicated by the Ohio working group. From lowest to highest cost, these are:

Option 3B: A traditional school year, with 168 instructional and 188 total days for all students, a poverty concentration threshold of 70% for all schools but rural, for which the threshold is 40%.

Option 2B: Year Round schooling, with 180 instructional days and 200 total days for students in concentrated poverty schools, and 168 instructional and 188 total days for other students; a poverty concentration threshold of 70% for all schools but rural, for which the threshold is 40%.

Option 1B: Year Round schooling, with 185 instructional days and 205 total days for all students; a poverty concentration threshold of 70% for all schools but rural, for which the threshold is 40%.

Option 1C: Year Round schooling, with 185 instructional days and 205 total days for all students; applying the Disproportionate Rate of Use (DRU) approach, rather than a poverty concentration threshold.

## **B. Comparison of District Policies**

Each district team considered the research findings and its own local conditions, and specified detailed sets of educational policies. For this summary, we describe some of the major variations.

### *Contact Time & Length of Year*

Although there was a wide range of both instructional and total contract days that were specified across the state and district scenarios, the teams from low income districts explored expanding to as many as 205 days in the school year (including instructional, assessment, administration, and professional development days). The suburban district felt the least need to add days to the school year, specifying 164-168 instructional, 183-184 total. The big-city district felt the greatest need, specifying 180-185 instructional, 198-205 total days. The rural district specified the widest range instructional days – from 175 to 190.

### *Student-Teacher Ratios*

All teams reflected the research findings that lower ratios are more important in the early grades. The Big City district specified ratios higher than the state team set for students in concentrated

poverty schools, but similar to those specified by the state team for students in non-poverty settings. The K-3 ratios specified by the state team are at the lower end of what is indicated by the research (15:1); the Big City specifications are at the high end (18:1), indicating a judgment to allocate scarce resources to other strategies, since there is about a 16% cost difference between 15 and 18. The Rural district's ratios closely align with the state's ratios for concentrated-poverty schools. The Suburban district chose to compare two sets of student-teacher ratios, with one set closely mirroring the state's specifications (but with smaller class sizes in early grades). The alternative approach held down the cost of teacher FTE's by adding 3-5 students per teacher to the state team's specifications for elementary and middle school, and adding 8 students per teacher for high school. This approach could reduce spending, or free funds for other investments in student performance.

### III. Major Findings, Round 2

#### A. Total Costs of Education, Statewide

For the purpose of this analysis, most of the policy specifications described above were held constant. Variations were made in length of school year and approaches to allocating additional resources to low income students. Compared to current policies, *when fully implemented*, the policy options specified would increase total P-12 public education spending by a range of 16% to 31%. If the state share were to remain at the current 47%, the increase in annual state funding would range from \$1.2 to \$2.4 billion. Since many of the policy changes explored would represent major departures from current practice, it would take a number of years to have them adopted across all school districts; the costs during the phase-up period would be less.

- The options involving moving to year round schooling (1A-C), would have the greatest costs, ranging from increases of 23 to 32 percent in total P-12 education spending. Within the year-round approach, the options using a concentrated poverty threshold based on having at least 70 percent low income students in an urban or suburban school – or 40% in a rural school (1A,B) - would generate 23-24% increases. An alternative approach (1C), by which additional funds are allocated relative to all low income students, even at low or moderate concentrations, would yield a 32% increase in total costs.
- The options based on a traditional school year, but increasing instructional days only for students in concentrated poverty schools (2A,B), would increase costs by 17-18%, depending upon whether a lower poverty concentration threshold was used for rural schools.
- The options based on a traditional school year without increased days (3A,B) would increase costs by 16-17% if a poverty concentration threshold approach were applied, and by 25% with the DRU approach (3C).

- The incremental cost of increasing the traditional school year for students in concentrated poverty schools from 188 to 200 days would be about 1% of total costs (options 2A,B vs. options 3A,B).

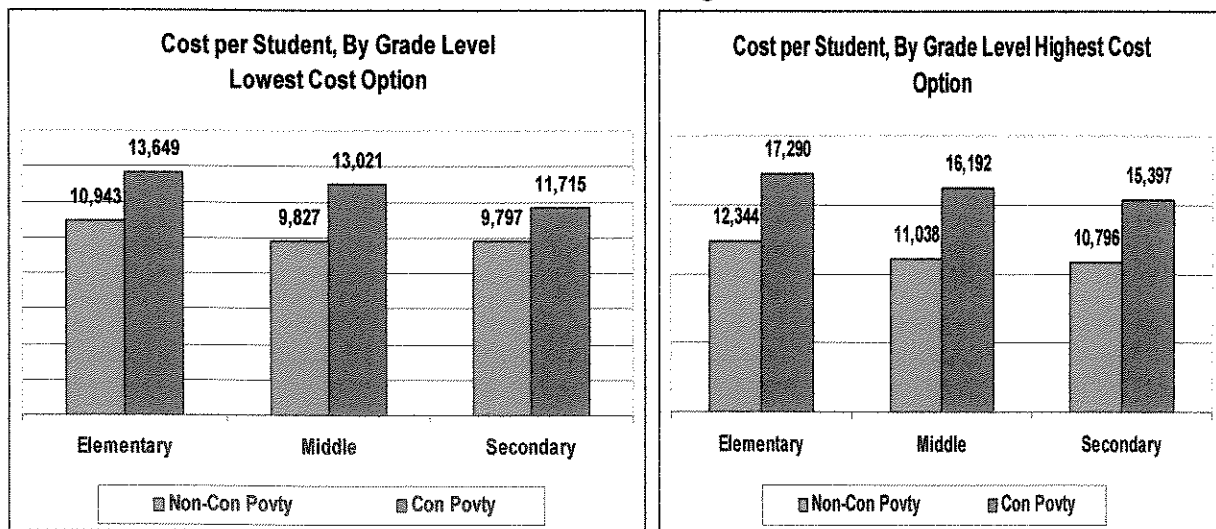
*B. Cost per Student*

Our cost modeling is built up from the cost of policies specified for students of different characteristics and grade levels. These per-student averages would vary considerably by policy scenario, type of district, category/characteristic of student and by grade level. Based on Ohio Department of Education enrollment data, we estimate 1.4 percent of students are ELL and 13.4 percent are in Special Education. If the 70 percent concentrated poverty threshold is used for all schools, 11 percent of all students are in concentrated poverty settings; if the threshold is lowered to 40 percent for rural districts, 16 percent of students are in concentrated poverty.

- Across the alternative policy scenarios, the statewide average cost per student would range from \$10,722 to \$12,128.
- The increases over the current \$9,300 per student average would range from \$1,453 (+16%) to \$2,859 (+31%).

*C. Costs by Grade Level.*

The HSPC Education Policy and Finance simulation project asks teams to specify policies to meet the specific needs of children at pre-K, elementary, middle and high school levels. As seen in the charts below, the policies specified by the Ohio team produced a consistent pattern of greater per-student costs at the elementary levels, and lower in high school. For concentrated poverty schools, where early adolescents face particular challenges, the policies specified for middle schools yielded costs close to those of elementary students; for non-concentrated poverty schools, middle school costs were closer to those of high school students.



#### D. Costs of Meeting Different Student Needs

- In dollar terms, the policies specified for general education students in concentrated poverty schools cost from \$2,400 to \$3,900 more per student than the policies for non-concentrated poverty schools, depending on the scenario. On average, across scenarios, the cost difference is \$3,200.
- The average cost of educating students in concentrated poverty schools, based on the strategies specified by the Ohio team, ranges from 23 to 34 percent more than the cost per student in non-concentrated poverty schools. Averaged across policy scenarios and types of student, the differential for students in concentrated poverty schools would be 30 percent.
- The cost differential for concentrated poverty schools was highest for middle schools (29%), next highest for elementary schools (26%) and lowest for high schools (21%).
- The policies specified for special education and ELL students yield costs in the range of 51% to 63% higher than general ed students in non-concentrated schools, and 32% to 50% higher in concentrated poverty schools. The cost differentials are higher for non-concentrated schools, since some of the policies specified for these high-need students, such as lower student:teacher ratios and teacher pay differentials, are applied to all students in concentrated poverty schools.

#### E. Impact on Allocation of Spending by Type of District

It is important to consider what effect school spending policies would have on the share of funds allocated to different types of school district. Such district allocations were not an explicit part of the conversation, but were implicit in the understanding that districts would have varying shares of their students in schools with concentrated poverty, and varying shares of students who were English Language Learners or in Special Education. We do not present data for individual districts, but focus on the categories of district in the helpful typology developed by the Ohio Department of Education.

- Most of the policy options specified by the Ohio state team would slightly reduce the *share* of spending by the high poverty urban districts, from 23.3% to between 22.6 and 23.0% (while substantially increasing the total *amount* allocated to these districts). The exception is the more expensive DRU option, which would allocate additional funds to all low income students, regardless of school-level concentration.
- Similarly, the share of funding for the *low-moderate income rural districts* would decline slightly, to match their 10.4% share of the population.

- The share spent by *higher income urban and suburban districts* would increase somewhat, but still be less than their share of the student population under most scenarios.

#### *F. District Level Findings*

The project had valuable participation from three district teams: a major urban district with mostly low income students; a low income rural district; and a more affluent suburban district. The districts also specified multiple options across two rounds of deliberation and analysis, and were able to focus on the needs of their particular district.

- The major urban district has the highest current per pupil expenditure (\$12,900) among the three participating districts, but would prefer policies to meet the needs of its mostly low income student body – especially a longer school year -- that would increase costs significantly – by 11 to 17 percent depending on the scenario.
- The low income rural district currently has the least resources, spending only \$7,700/student (88% of the state average). Its leaders would prefer a set of policies – from increasing teacher pay, to reducing class size, to increasing the length of the school year – that would result in a major increase in costs. We estimate total cost increases from 38 to 62 percent.
- The affluent suburban district has relatively high student performance and is mostly satisfied with its current level of resources. One scenario its leaders explored would actually decrease expenditures by 1%; the most costly scenario would increase costs by 7%.

## IV. Conclusion

The Ohio state and district level teams explored a wide range of policy options to meet the needs of different students in a variety of school and district settings. They paid careful attention to the available research linking certain investments to improved student performance, while applying knowledge of local needs, experiences and preferences as they specified policies. After examining the major cost increases implied by their first round policy specifications, the state team moderated the investments to bring the costs toward a more feasible range.

The Ohio state team maintained that the wide range of investments it specified were part of a coherent strategy, all parts of which are necessary for success. Two of the most costly strategies – smaller class sizes and higher teacher pay – were applied for all students, though the student:teacher ratios were even lower for concentrated poverty schools.

If overall cost increases of 16 to 32 percent – about \$1.2 to \$2.4 billion additional state spending – are not immediately feasible, then it would be possible to explore more targeted strategies.

**Appendix: Charts and Tables**

<b>Teacher Student Ratios, State and District Comparison</b>				
	<b>State</b>	<b>Big City</b>	<b>Rural</b>	<b>Suburban</b>
<b>Concentrated Poverty</b>				
Kindergarten	15	18	15	
Elementary (1-3)	15	20	15	No differential policy specified
Elementary (4-5)	20	20	17	
Middle School	22	24	20	
High School	22	24	23	
<b>Non-Concentrated Poverty</b>				
Kindergarten	18			16-21
Elementary (1-3)	18	No differential policy specified	No differential policy specified	16-21
Elementary (4-5)	22			21-26
Middle School	25			23-28
High School	25			26-33

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Elementary (4-5)	22			21-26
Middle School	25			23-28
High School	25			26-33

*Table \_\_: Impact of Policy Options on Average Teacher Payments*

		<b>Average Teacher Payments (\$\$)</b>	<b>Ratio to Current Average Teacher Payments</b>	<b>Contract Days</b>	<b>Ratio to State Current Contract Days</b>	<b>Average Salary Per Day (\$\$)</b>	<b>Ratio to State Current Ave. Daily Salary Rate</b>
<b>State Actual 2005</b>							
	State Current 2005	\$48,938	1.000	183	1.00	\$267.4	1.00
<b>State Team's Policy Specification</b>							
Options 1A, 1B, 1C	All Schools	58,196	1.189	205	1.12	283.9	1.06
Options 2A , 2B	Concentrated Poverty Schools	56,776	1.160	200	1.09	283.9	1.06
Options 2A , 2B	Non Concentrated Poverty Schools	53,370	1.091	188	1.03	283.9	1.06
Options 3A, 3B, 3C	All Schools	53,370	1.091	188	1.03	283.9	1.06