Appendix for U.S. School Finance: Resources and Outcomes

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Table A1: Literature search keywords

Strand	Keywords
School spending	school spending; expenditure; resources; inputs; school finance; school finance reform; budget; funding; revenues; money matters
Capital spending	capital expenditure; construction; school facilities; infrastructure; buildings; bond referendum
Class size	class size; pupil to teacher ratio; PTR; small classes; large classes; Maimonides Rule; class size reduction
Performance pay	performance pay; pay-for-performance; incentives; teacher bonuses; performance-related; teacher pay reform

Table A2: School spending sources and calculations

Study	Outcome	Units	Impact	DV SD or mean	Base spending	Change in spending ($)	Change in spending (%)	Calculation notes
Abott, Kogan, Lavertu, and Peskowitz (2020)	Test scores	Standardized scores	Table 8 Math/ELA (SDs), <5yrs: .075 (.043)	-	Table 3 Mean Operations expenditure per per pupil: 10,061	Table 8 Expend. P.P., <5yrs: 463	463 /10,061 *100 = 4.6%	1. divide by % change in spending and multiply by 10
Abott, Kogan, Lavertu, and Peskowitz (2020)	Graduation	Percentage points	Table 8 Grad. Rate, <5yrs: 1.69 (2.09)	Table 3 Mean Graduation rate: 86.6	Table 3 Mean Operations expenditure per per pupil: 10,061	Table 8 Expend. P.P., <5yrs: 463	463 /10,061 *100 = 4.6%	1. divide by the mean graduation rate 2. divide by % change in spending and multiply by 10
Baron (2022)	Test scores	Raw scores	Table 8 operational: 4.36 (1.60)	Footnote 28, SD: 43.2	Table 2 Total Expend. PP: 10,375	Table 4 Op. expend.: 298	298 /10375 *100 = 2.87%	1. divide by the test score SD (43.2) 2. divide by % change in spending and multiply by 10
Baron (2022)	Dropout	Percentage points	Table 5 Panel B: -.08 (.07)	Table 2 Dropout rate (percent), mean: .99	Table 2 Total Expend. PP: 10,375	Table 4 Op. expend.: 298	298 /10375 *100 = 2.87%	1. divide by the mean dropout rate (.99) 2. divide by % change in spending and multiply by 10 3. multiply by -1
Baron (2022)	College	Percentage points	Table 5 Panel B: .12 (.04)	Table 2 Postsecondary enrollment share, mean: .42	Table 2 Total Expend. PP: 10,375	Table 4 Op. expend.: 298	298 /10375 *100 = 2.87%	1. divide by the mean college-going rate (.42) 2. divide by % change in spending and multiply by 10

Study	Outcome	Units	Impact	DV SD or mean	Base spending	Change in spending ($)	Change in spending (%)	Calculation notes
Baron, Hyman, and Vasquez (2022)	Test scores	Standardized scores	Table 8 Grade 4: 1.215 (.432), Grade 8: -.416 (.300)	-	-	-	-	1. Per page 21, 10% increases ->.12 SD for grade 4, so use .1215 and -.0416 2. use grade level average procedure to combine estimates
Baron, Hyman, and Vasquez (2022)	Graduation	Percentage points	Table 8: .268 (.087)	Table 8: .782	-	-	-	1. Per page 21, 10% increases ->3 percentage points, so we use 2.68 2. divide by dependent variable mean as a percent (78.2)
Baron, Hyman, and Vasquez (2022)	College	Percentage points	Table 8: .150 (.066)	Table 8: .349	-	-	-	1. Per page 21, 10% increases ->2 percentage points, so we use 1.5 2. divide by dependent variable mean (34.9)
Blimpo, Evans, and Lahire (2015)	Test scores	Standardized scores	Table 14, Grant - Math: -.07 (.06), English: -.06 (.06)	-	-	-	Page 8: "less than 5% of average annual school budget" - 5% used	1. Combine estimates using subject average procedure 2. divide by % change in spending and multiply by 10

Study	Outcome	Units	Impact	DV SD or mean	Base spending	Change in spending ($)	Change in spending (%)	Calculation notes
Brunner, Hyman, and Ju (2020)	Test scores	Standardized scores	Table 7 column 1: .007 (.002)	-	Table 1: 9,347	Calculated from the following: median state aid increase = $750 (page 478), for every dollar of aid, current expend. rises by 49.8 cents (table 2 column 6) (750 *.498 =373.5)	373.5 /9347 *100 = 3.996%	1. Multiply by 4 to get 4 years of exposure 2. Divide by % change in spending and multiply by 10
Buerger, Lee, and Singleton (2021)	Test scores	Standardized scores	Table 1 Column 1, Accountability: .012 (.006)	-	-	-	Table A7: Low-income Accountability, expenditure: 7%	1. Per table 1, estimate is linear in years elapsed, so we multiply .012*4 to represent a 4-year exposure 2. divide by % change in spending and multiply by 10
Candelaria and Shores (2019)	Graduation	Percentage points	Table 1 column 1: .197 (.162)	Table 2 mean: 77	-	-	Table 5 outcome labelled as log(Rev/Pupil), so infered to represent 1% increase	1. Divide by mean grad. rate 2. divide by % change in spending and multiply by 10

Study	Outcome	Units	Impact	DV SD or mean	Base spending	Change in spending ($)	Change in spending (%)	Calculation notes
Carlson and Lavertu (2018)	Test scores	Standardized scores	Table 5, Year 4, Dynamic Reading: .221 (.131), Math: .171 (.107)	-	Page 303: $14,100	Average across yearly estimates from Table 8 Dynamic RD: (351 +1980.886 +2572.86 +3289.86) /4 = 2048.65	2048.65 /14100 *100 = 14.53%	1. Divide each estimate by % change in spending and multiply by 10 2. use grade level average procedure to combine estimates
Cascio, Gordon, Reber (2013)	Dropout	Percentage points	Table 7 Column 1 Panel A White: -3.46 (1.15), Black: .66 (1.05)	Page 147 - White: 32, Black = 45	Table 1 Per-pupil current expenditure level, 1964: 1905.66	Table 7: $100	100 /1905.66 = 5.25%	1. separately divide each estimate by the DV mean 2. use the subpopulation average procedure to combine estimates (.9 share white, .1 share black) 3. Divide by % change in spending and multiply by 10
Clark (2003)	Test scores	Standardized scores	Table 10 IV Composite, Current expend.: .111 (.090)	-	Table 2 Current expenditure, Kentucky, 2000: 4872	Table 10 DV listed in 1000s: $1000	1000 /4872 *100= 20.53%	1. divide by % change in spending and multiply by 10

Study	Outcome	Units	Impact	DV SD or mean	Base spending	Change in spending ($)	Change in spending (%)	Calculation notes
de Ree et al. (2018)	Test scores	Standardized scores	Table VII column 7: .009 (.047)	-	-	-	86%: for affected students, spending on teachers doubled (100%). Information about expenditures are not available in the text, but per World Bank statistics, teacher salaries represent 86% of education spending in Indonesia	1. divide by % change in spending and multiply by 10
Gigliotti and Sorenson (2018)	Test scores	Standardized scores	Table 4 PPE Math: .0468 (.0131), English: .0420 (.0106)	-	Table 1 PPE Mean: 21800	Page 175: $1000	1000 /21800 *100 = 4.58%	1. Use subject average procedure to combine estimates 2. Divide by % change in spending and multiply by 10

Study	Outcome	Units	Impact	DV SD or mean	Base spending	Change in spending ($)	Change in spending (%)	Calculation notes
Guryan (2001)	Test scores	Raw scores	Table V Column 7 (4th grade) - Math: .033 (.011), Reading: .028 (.010); Table VI column 7 (8th grade) - Math: .007 (.010), Reading: -.001 (.013)	Table V SD (4th grade) - Math: 75.32, Reading: 74.69; Table VI SD (8th grade) - Math: 86.57, Reading: 87.77	Table I 1992 Per-pupil Spending: 4142	Table V and VI table notes: $1	1 /4142 *100= .0242%	1. divide each estimate by associated DV SD 2. Use subject average procedure to combine estimates within each grade 3. Use grade level average to combine pooled estimates across grades 4. Divide by % change in spending and multiply by 10
Hægeland, Raaum, and Salvanes (2012)	Test scores	Raw scores	Table 3 column 4: .219 (.066)	Page 610: 1.11	Page 604: NOK 54,250	Page 602: NOK 10,000	10000 /54250 *100 = 19.23%	1. Divide by DV SD 2. Divide by % change in spending and multiply by 10
Hyman (2017)	College	Percentage points	Table 4 column 4: .030 (.014)	Table 4 mean: .448	Table 1 operating expenditure, all: 9797	Page 269: $1000	1000 /9797 *100 = 10.21%	1. Divide by DV mean 2. Divide by % change in spending and multiply by 10
Jackson, Johnson, and Persico (2016)	Graduation	Percentage points	Table III Column 7: .7053 (.1436)	Table I High school graduate, All mean: .86	-	-	Table III DV presented as ln: 1%	1. Divide by DV mean (86%) 2. Divide by % change in spending and multiply by 10
Jackson, Wigger, and Xiong (2021)	Test scores	Standardized scores	Table 3 column 4: .0385 (.0110)	-	Table 1 Mean: 13,208	Page 322: $1000	1000 /13208 *100 = 7.47%	1. divide by % change in spending and multiply by 10
Jackson, Wigger, and Xiong (2021)	College	Percentage points	Table 3 column 8: .0124 (.00387)	Table 1 College enrollment mean: .475	Table 1 Mean: 13,208	Page 322: $1000	1000 /13208 *100 = 7.47%	1. Divide by DV mean 2. Divide by % change in spending and multiply by 10

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Table A2 continued from previous page

Study	Outcome	Units	Impact	DV SD or mean	Base spending	Change in spending ($)	Change in spending (%)	Calculation notes
Johnson (2015)	Graduation	Percentage points	Table 2 Column 1: .0224 (.0093)	Table A1 mean for All: .84	Table A1 mean for All: 4187	Page 65: $100 increase in funding with pass-through rate of approx. $0.85 per $1 (Figure 9) = $85	85 /4187 *100 = 2.03%	1. Divide by DV mean 2. Divide by % change in spending and multiply by 10
Kreisman and Steinberg (2019)	Test scores	Standardized scores	Table 5 - Reading (column 1): .097 (.029), Math (column 3): .077 (.032)	-	Table 1 Expenditures: 12,622	Page 129: $1000 increase in allotments; Page 126: $1000 in allotments ->$1600 in additional spending	1600 /12622 *100 = 12.68%	1. divide by % change in spending and multiply by 10
Kreisman and Steinberg (2019)	Dropout	Percentage points	Table 8 column 1: -.016 (.006)	Table 8: .04	Table 1 Expenditures: 12,622	Page 129: $1000 increase in allotments; Page 126: $1000 in allotments ->$1600 in additional spending	1600 /12622 *100 = 12.68%	1. Divide by DV mean 2. Divide by % change in spending and multiply by 10 3. Multiply by -1

Study	Outcome	Units	Impact	DV SD or mean	Base spending	Change in spending ($)	Change in spending (%)	Calculation notes
Kreisman and Steinberg (2019)	Graduation	Percentage points	Table 8 column 4: .021 (.011)	Table 8: .904	Table 1 Expenditures: 12,622	Page 129: $1000 increase in allotments; Page 126: $1000 in allotments ->$1600 in additional spending	1600 /12622 *100 = 12.68%	1. Divide by DV mean 2. Divide by % change in spending and multiply by 10
Kreisman and Steinberg (2019)	College	Percentage points	Table 9 column 7: .103 (.026)	Table 1 mean: .48	Table 1 Expenditures: 12,622	Page 129: $1000 increase in allotments; Page 126: $1000 in allotments ->$1600 in additional spending	1600 /12622 *100 = 12.68%	1. Divide by DV mean 2. Divide by % change in spending and multiply by 10
Lafortune, Rothstein, and Schanzenbach (2018)	Test scores	Standardized scores	Table 8 overall: .004 (.003)	-	Table 4 Mean: 11,595	Table 4 Total expenditures, mean: 907	907 /11595 *100=7.8%	1. Divide by % change in spending and multiply by 10 2. multiply by 4 to get the effect after 4 years
Lee and Polachek (2018)	Dropout	Percentage points	Table 4 Quad., 2SLS: -.2599 (.1237)	Mean, Table 1 Dropout Rate, 9-12th grade (%): 3.056	-	-	Presented as effect of 1% increase in expenditure (table 4)	1. Divide by DV mean 2. Multiply by 10 to get effect of 10% increase in spending

Study	Outcome	Units	Impact	DV SD or mean	Base spending	Change in spending ($)	Change in spending (%)	Calculation notes
Leuven et al. (2007)	Test scores	Standardized scores	Unconditional salary subsidies - Table 5 - Language: -.156 (.071), Math: -.106 (.083); Technology subsidies - Table 6 - Language: -.036 (.046), Math: -.044 (.051)	-	-	-	Salary subsidies: represent 10% of salaries (page 721), which in turn make up 80% of overall spending. Thus, subsidy is 8% of overall spending. Tech subsidies: 17% of nonpersonnel spending, which is in turn 20% of overall spending. Thus, subsidy is 3.4% of overall spending.	(Separate estimates for each subsidy type) 1. use subject average procedure to combine estimates 2. divide by % change in spending and multiply by 10

Study	Outcome	Units	Impact	DV SD or mean	Base spending	Change in spending ($)	Change in spending (%)	Calculation notes
Miller (2018)	Test scores	Standardized scores	Table 5 - 4th Grade Math: .775 (.338), 4th Grade Reading: .879 (.304), 8th Grade Math: .929 (.401), 8th Grade Reading: .477 (.277)	-	-	-	-	1. Per page 30, 10% inc. in spending ->.078 SD increase in 4th grade math. Accordingly scaled each separate esttimate 2. use subject average procedure to combine estimates within each grade 3. use grade level average procedure to combine pooled estimates across grades
Miller (2018)	Graduation	Percentage points	Table 4 column 6: .384 (.098)	Table 4 column 6 DV mean: .81	-	-	-	1. Per page 30, 10% inc. in spending ->2.1-4.4 pp increase in grad. rates, so transform estimate to 3.84 pp 2. divide estimate by DV mean as % (81)
Rauscher (2020b)	Test scores	Standardized scores	Table 4 Grew x Post Rural (column 2): -.38 (.14), Non-rurual (column 6): .10 (.09)	-	Table A1 Total Spending/Pupil ($1000s) Rural: 13.77, Nonrural: 13.42	Table 2 Spending (in $1000s), Grew x Post Rural (column 2): -.94 (.47), Non-rural (column 6): -.55 (.20)	Rural: (-940 /13770) *100 = -6.83%, Non-rural: (-550 /13420) *100 = -4.1%	(separate estimates): 1. divide by % change in spending and multiply by 10

Study	Outcome	Units	Impact	DV SD or mean	Base spending	Change in spending ($)	Change in spending (%)	Calculation notes
Rothstein and Schanzenbach (2022)	Graduation	Percentage points	Table 3 Panel A: .0020 (.0008)	Table 1 mean: .93	Lafortune, Rothstein, and Schanzenbach (2018) - Table 4 Mean: 11,595	Table 2, total revenue per pupil: $839	839 /11595 *100 = 7.24%	1. Multiply by 4 to get 4 years of exposure 2. Divide by DV mean 3. Divide by % change in spending and multiply by 10
Rothstein and Schanzenbach (2022)	College	Percentage points	Table 3 Panel A: .0014 (.0007)	Table 1 mean: .69	Lafortune, Rothstein, and Schanzenbach (2018) - Table 4 Mean: 11,595	Table 2, total revenue per pupil: $839	839 /11595 *100 = 7.24%	1. Multiply by 4 to get 4 years of exposure 2. Divide by DV mean 3. Divide by % change in spending and multiply by 10
Weinstein, Stiefel, Schwartz, and Chalico (2009)	Test scores	Standardized scores	Table 7 - Math (column 2): -.011 (.017), Reading (column 4): -.031 (.016)	-	Table 1 Total Spending, 1996-97: 11,232	Page 17: $284 increase in spending	284 /11232 *100 = 2.53%	1. Use subject average procedure to combine estimates 2. divide pooled estimate by % change in spending and multiply by 10

Notes: DV = dependent variable. SD = standard deviation. Subject average procedure = we compute the standard deviation of these average effects by following Chapter 24 of Borenstein, Hedges, Higgins, and Rothstein (2021) and assuming a correlation of 0.5 among test score subjects within the same grade as done by Jackson and Mackevicius (2021). Grade level average procedure = for estimates across various grades, we follow Chapter 23 of Borenstein, Hedges, Higgins, and Rothstein (2021) to use an assumed correlation of zero as done by Jackson and Mackevicius (2021). Subpopulation average procedure = to combine estimates across demographic subpopulations, we apply the methods outlined in Borenstein, Hedges, Higgins, and Rothstein (2021) in Chapter 24.

Table A3: Capital spending sources and calculations

Study	Outcome	Units	Impact	DV SD or or mean	Calculation notes
Baron (2021)	Effect of bond passage on 10th grade math scores; average across first 10 post-election years	Raw scores	Table 8 column 2: .54 (1.30)	Table 2 column 3 avg. scale score SD: 12.35	1. divide by DV SD
Baron (2021)	Effect of bond passage on dropout rate; average across first 10 post-election years	Percentage points	Table 5 Panel B: -0.08 (.07)	Table 2 Column 3 Dropout rate (percent): 0.99	1. divide by DV mean 2. multiply by -1
Baron, Hyman, and Vasquez (2022)	Effect of bond passage in K on 4th and 7th grade math scores	Standardized scores	Table 11 column 1 and 2 Grade 4: -.037 (p-value = .428, Grade 8: .091 (p-value = .200)	-	1. use grade level average procedure to combine estimates
Baron, Hyman, and Vasquez (2022)	Effect of bond passage in K on high school graduation	Percentage points	Table 11 column 5: .018 (p-value = .354)	Table 11 control mean: .751	1. divide by DV mean
Cellini, Ferreira, and Rothstein (2010)	Effect of bond passage on test scores, 6 years post	Raw scores	Table VII, column 6 Reading: .103 (.064), Math: .160 (.075)	From page 252: estimates correspond to .067 and .077 student-level SDs	1. using estimates in terms of student-level SDs, combine estimates with grade level average procedure
Conlin and Thompson (2017)	Effect of a $1200 increase in pp capital expenditures 3 years prior on proficiency rates	Percentage points	Table 3 column 2, Capital Exp. PP (t-3) - Math: -0.127 (.066), Reading: 0.049 (.043)	Table 1, % Proficient... Math: 75.60, Reading: 82.48	1. divide each estimate by DV mean 2. use subject average procedure to combine estimates
Conlin and Thompson (2017)	Effect of a $1200 increase in the value of pp capital stock 4 years prior on proficiency rates	Percentage points	Table 3 column 2, Capital Stock PP (t-4) - Math: .046 (.015), Reading: 0.009 (.009)	Table 1, % Proficient... Math: 75.60, Reading: 82.48	1. divide each estimate by DV mean 2. use subject average procedure to combine estimates
Goncalves (2015)	Effect of exposure to construction on proficiency rates; 4 years post	Percentage points	Table 4 columns 1 and 2 - Math: -2.553 (.945), Readimg: -1.720 (.765)	Table 4 Avg Proficiency - Math: 80.122, Reading: 80.122	1. divide each estimate by DV mean 2. use subject average procedure to combine estimates

Table A3 continued from previous page

Study	Outcome	Units	Impact	DV SD or mean	Calculation notes
Goncalves (2015)	Effect of exposure to completed construction; 6 years post	Percentage points	Table 4 columns 1 and 2 - Math: 1.266 (1.347), Reading: -1.442 (1.072)	Table 4 Avg Proficiency - Math: 80.122, Reading: 80.122	1. divide each estimate by DV mean 2. use subject average procedure to combine estimates
Hong (2017)	Effect of bond passage on 4th and 7th grade reading proficiency, 6 years post	Percentage points	Table 5, year 6, Latent factor model - 4th grade: -0.017 (.571), 7th grade: -.113 (.644)	Table 1 column 1 - 4th grade: 65.31, 7th grade: 56.41	1. divide each estimate by DV mean 2. use grade level average procedure to combine estimates
Hong and Zimmer (2016)	Effect of bond passage on 4th and 7th grade reading proficiency, 6 years post	Percentage points	Table 5 Bond passage, year 6 - 4th grade: 2.13 (1.4), 7th grade: 1.44 (1.63)	Table 3 column 1 - 4th grade: 68.05, 7th grade: 58.75	1. divide each estimate by DV mean 2. use grade level average procedure to combine estimates
Lafortune and Schonholzer (2019)	Effect of an additional year of exposure to a newly constructed schools on test scores	Standardized scores	Table 3 column 6 and 12, Math: .031 (.014), Reading: .027 (.010)	-	1. use subject average procedure to combine estimates
Martorell, Stange, and McFarlan (2016)	Effect of bond passage on test scores in grades 3-8 and 10 , 6 years post	Standardized scores	Table 5, 6 years - Grades 3-8 Reading: .106 (.020), Grade 3-8 Math: .030 (.027), Grade 10 Reading: .007 (.025), Grade 10 Math: -.036 (.031)	-	1. use subject average procedure to combine estimates within grade levels 2. use grade level average procedure to combine pooled estimates
Martorell, Stange, and McFarlan (2016)	Effect of bond passage on attendance rate in grades 3-8, 6 years post	Standardized scores	Table 5, 6 years: -.014 (.071)	Table 5 mean: 96.4	1. divide by DV mean
Neilson and Zimmerman (2014)	Effect of new school construction on test scores in grades 3-8, 6 years post occupancy	Standardized scores	Table 6 FE, >5 - Reading: .153 (.061), Math: .031 (.074)	-	1. use subject average procedure to combine estimates
Rauscher (2020a)	Effect of bond passage on high SES test scores, 6 years post	Raw scores	Table 4 column 6, 6 years: 12.36 (16.59)	Calculated from discussion on page 119: 82.5	1. divide by DV SD
Rauscher (2020a)	Effect of bond passage on low SES test scores, 6 years post	Raw scores	Table 4 column 3, 6 years: 47.77 (23.74)	Calculated from discussion on page 119: 82.5	1. divide by DV SD

Study	Outcome	Units	Impact	DV SD or mean	Calculation notes
Schlaffer and Burge (2020)	Effect of bond passage on scores in grades 3-8, 6 years post	Standardized scores	Table 3, Total score, Yes Vote 6 year lag: .063 (.017)	-	-
Schlaffer and Burge (2020)	Effect of new school construction on test scores in grades 3-8, 4+ years post occupancy	Standardized scores	Table 4: Total score, 4+ years: .0928 (.00785)	-	-
Zhang (2014)	Effect of new school construction on grade 11 GCSE scores, 3 years post	Raw scores	Table 4 column 3, Year +3: 1.43 (.89)	Table 2 test score SD: 10.97	1. divide by DV SD

Notes: DV = dependent variable. SD = standard deviation. Subject average procedure = we compute the standard deviation of these average effects by following Chapter 24 of Borenstein, Hedges, Higgins, and Rothstein (2021) and assuming a correlation of 0.5 among test score subjects within the same grade as done by Jackson and Mackevicius (2021). Grade level average procedure = for estimates across various grades, we follow Chapter 23 of Borenstein, Hedges, Higgins, and Rothstein (2021) to use an assumed correlation of zero as done by Jackson and Mackevicius (2021). Subpopulation average procedure = to combine estimates across demographic subpopulations, we apply the methods outlined in Borenstein, Hedges, Higgins, and Rothstein (2021) in Chapter 24.

Table A4: Class size sources and calculations

Study	Outcome	Units	Impact	DV SD or mean	Change in class size	Calculation notes
Angrist and Lavy (1999)	Test scores	Raw scores	Table IV 2SLS estimates for grade 5, columns 2 and 8 Reading: -.275 (.066), Math: -.230 (.092) Table V 2SLS estimates for grade 4, columns 2 and 8 Reading: -.133 (.059), Math: -.050 (.070) Table VIII 2SLS estimates for grade 3, columns 4 and 8 Reading: -.052 (.047), Math: -.005 (.056)	Table I full sample average verbal and average math S.D. Grade 5: 7.7, 9.6 Grade 4: 8.0, 8.8 Grade 3: 6.1, 6.8	Inferred to be 1 student	1. use subject average procedure separately across math and reading for all grades 2. use grade level average procedure to combine across grades 3, 4, and 5 3. multiply by -1
Angrist, Battistin, and Vuri (2017)	Test scores	Standardized scores	Table 8 IV/2SLS Italy, column 1 Math: .0075 (.0213) Language: .012 (.017)	-	10 students - Table 8 table notes: "show the effect of ten students"	1. use subject average procedure to combine estimates 2. divide by 10 to get effect of 1-student reduction 3. multiply by -1
Angrist, Lavy, Leder-Luis, and Shany (2019)	Test scores	Raw scores	Table I column 4 and 8 Language: -.0288 (.0322) Math: .0137 (.0429)	Table A1 Student Level Data, S.D. Language: 17.4 Math: 20.6	Inferred to be 1 student from page 320 discussion of Appendix Table A5	1. divide each subject estimate by appropriate S.D. 2. use subject average procedure to combine estimates 2. multiply by -1
Argaw and Puhani (2018)	Tracking	Percentage points	Table 2 Track choice - TR sample, 2nd order polynomial: -.003 (.002)	Table 1 TR sample Higher track attendance: .54	Inferred to be 1 student from page 52 discussion of results	1. divide by sample DV mean 2. multiply by -1
Asadullah (2005)	Pass rate	Percentage points	Table 1 panel (a), 2SLS Test Score (t-statistic): .070 (3.4)	Appendix A test score mean pass rate mean: .23	Inferred to be 1 student	1. divide estimate by mean of DV 2. multiply by -1

Table A4 continued from previous page

Study	Outcome	Units	Impact	DV SD or mean	Change in class size	Calculation notes
Bonesronning (2003)	Test scores	Raw scores	Table 1 column 4: -.06 (.04)	Page 958: 4.57	Inferred to be 1 student from page 958 discussion of results	1. divide by sample DV SD 1. multiply by -1
Bosworth (2014)	Test scores	Standardized scores	Table 4 Teacher-fixed effects models: Math: -.0052 (14.40 *t-ratio, not SE) Reading: -.0032 (7.83 *t-ratio, not SE)	-	1 student - Page 151: "estimates of class size effects.. Suggest a 1 student decrease..."	1. calculate standard errors using t-ratios 2. use subject average procedure to combine estimates 4. multipy by -1
Browning and Heinesen (2007)	Years of education	Years	Table 2 column 8: -.0204 (.0153)	Table 1 Mean: 12.45	Inferred to be 1 student from discussion of results on bottom of page 435	1. divide by sample DV mean 2. multiply by -1
Cho, Glewwe, and Whitler (2005)	Test scores	Standardized scores	Table 6 pooled estimates Math: -.0047 (.0021) Reading: -.0040 (.0017)	-	1 student - Inferred from page 86: "reducing class size by ten students... .04-.05 standard deviations"	1. use subject average procedure to combine estimates 3. multpily by -1
Dee and West (2011)	Test scores	Standardized scores	Table 2 column 4, STEST coefficient: -.0018 (.0021)	-	1 student -Inferred from discussion of effect size on page 31	1. multiply by -1
Denny and Oppedisano (2013)	Test scores	Raw scores	Table 6 USA IV: 1.594 (2.020)	Table 2 USA Std math test score, Std dev: 93.9	1 student - Page 62: "increase in class size of 1"	1. divide estimate by SD of DV 2. multiply by -1
Denny and Oppedisano (2013)	Test scores	Raw scores	Table 6 UK IV: 6.015 (3.041)	Table 2 UK Std math test score, Std dev: 91.78	1 student - Page 62: "increase in class size of 1"	1. divide estimate by SD of DV 2. multiply by -1
Falch, Sandsor, and Strom (2017)	Years of education	Years	Table 3 column 6: .0008 (.0020)	Table 3 Mean: 13.986	Inferred to be 1 student from discussion of results on page 672	1. divide by sample DV mean 2. multiply by -1

18

Table A4 continued from previous page

Study	Outcome	Units	Impact	DV SD or mean	Change in class size	Calculation notes
Fredriksson, Ockert, and Oosterbeek (2013)	Test scores	Standardized scores	Table V column 1, academic achievement, age 16: -.0233 (.0101)	-	Page 272: "one pupil change"	1. multiply by -1
Gary-Bobo and Mahjoub (2013)	Grade promotion	Percentage points	Table IV OLS Grade 6: -.0137 (.0044) Grade 7: -.0203 (.0060) Grade 8: .0059 (.0041) Grade 9: .0041 (.0052)	Grade promotion rate calculated using N students and N students promoted in Table II Grade 6: 14781/16055 Grade 7: 11626/14781 Grade 8: 10642/11626 Grade 9: 7613/10642	1 student - Page 206: "an additional student"	1. divide each grade level estimate by appropriate average promotion rate 2. use grade level average procedure to combine across grades 3. multiply by -1
Hoxby (2000)	Test scores	Standardized scores	Table IV column II Grade 4 math: -.0845 (.1227) Grade 4 reading: -.1027 (.0870) Grade 6 math: .0394 (.1578) Grade 6 reading: .1288 (.1462)	-	Page 1257: "10% reduction in class size... percent of a standard deviation," Page 1258: "Average class size... students," 10% of 21 = 2.1	1. use subject average procedure separately across math and reading for both 4th and 6th grade 3. use grade level average procedure to combine across 4th and 6th grade 4. divide pooled estimate by 2.1 (see change in class size column) 5. multiply by -1

19

Table A4 continued from previous page

Study	Outcome	Units	Impact	DV SD or mean	Change in class size	Calculation notes
Jepsen and Rivkin (2009)	Test scores	Standardized scores	Table 3 columns 4 and 9 (t-statistic in parentheses) Grade 2 math, reading: -.0072 (4.11), -.0063 (4.76) Grade 3 math, reading: -.0096 (11.45), -.0037 (5.93) Grade 4 math, reading: -.0056 (6.54), -.0035 (5.00)	Discussion of results on page 238 imply results displayed in SD terms for 1 student reduction	Discussion of results on page 238 imply results displayed in SD terms for 1 student reduction	1. use subject average procedure separately across math and reading for all grades 2. use grade level average procedure to combine across grades 2, 3, and 4 3. multiply by -1
Krueger (1999)	Test scores	Raw scores	Table V OLS column 4 K: 5.37 (1.19) Grade 1: 7.40 (1.18) Grade 2: 5.79 (1.23) Grade 3: 5.00 (1.19)	Calculated from page 514 discussion - K: 26.85. 1: 26.43, 2: 26.32, 3: 26.32	Inferred to be 7 students from discussion on page 500 - reduction from 22 to 15 students	1. divide each grade estimate by appropriate SD 2. use grade level average procedure to combine estimates 3. divide by 7 to get the effect of 1-student change 4. multiply by -1
Krueger and Whitmore (2001)	Test scores	Standardized scores	Table 8 Heckman correction All students: .574 (.188)	-	Page 20: mean difference in 4-year average class size between reg and small is 4.4 students	1. divide by 4.4 (change in class size) 2. multiply by -1
Leuven and Løkken (2018)	Years of education	Years	Table 3 column 1, panel C: -.0080 (.0093)	Table 1, mean years of schooling, All: 14	1 student - inferred from discussion of results presented in Table 3	1. divide by sample DV mean 2. multiply by -1
Leuven, Oosterbeek, and Ronning (2008)	Test scores	Standardized scores	Table 7 Math, Language Maximum class size: .002 (.006), .008 (.004) Population variation: .016 (.024), .0004 (.008)	-	1 student - inferred from page 685 discussion of results	(separate estimates) 1. multiply by -1

Table A4 continued from previous page

Study	Outcome	Units	Impact	DV SD or mean	Change in class size	Calculation notes
Urquiola (2006)	Test scores	Raw scores	Table 5 columns 3 and 6 Language: -.33 (.17) Math: -.25 (.20)	Table 1 Total, SDs Language: 9.3 Math: 9.2	Inferred to be 1 student from table 5 table notes	1. divide each subject estimate by appropriate S.D. 2. use subject average procedure to combine estimates 2. multiply by -1
Wößmann and West (2006)	Test scores	Raw scores	Table 4 SFE-IV, mathematics (see table for full set of estimates)	Table 1 Mathematics Test Score (column 4) standard deviations	Inferred to be 1 student	(separate estimates for each country) 1. divide each estimate by DV SD 2. multiply by -1

Notes: DV = dependent variable. SD = standard deviation. Subject average procedure = we compute the standard deviation of these average effects by following Chapter 24 of Borenstein, Hedges, Higgins, and Rothstein (2021) and assuming a correlation of 0.5 among test score subjects within the same grade as done by Jackson and Mackevicius (2021). Grade level average procedure = for estimates across various grades, we follow Chapter 23 of Borenstein, Hedges, Higgins, and Rothstein (2021) to use an assumed correlation of zero as done by Jackson and Mackevicius (2021). Subpopulation average procedure = to combine estimates across demographic subpopulations, we apply the methods outlined in Borenstein, Hedges, Higgins, and Rothstein (2021) in Chapter 24.

Table A5: Performance pay sources and calculations

Study	Outcome	Units	Impact	DV SD or mean	Calculation notes
Andrabi and Brown (2022)	Test scores	Standardized scores	Table 3 column 1: .0918 (.0575)	-	-
Atkinson et al. (2009)	Test scores	Raw scores	Table 4 GCSE column 2, Eligible: .89 (.37)	-	Per page 259, this represents .53 SD
Barrera-Osorio and Raju (2017)	Test scores	Standardized scores	Table 4 Exam scores, 1st year: .00809 (.06)	-	-
Barrera-Osorio et al. (2022)	Test scores	Standardized scores	Table 1 Full sample, Mid: .239 (.084)	-	-
Behrman, Parker, Todd, and Wolpin (2015)	Test scores	Raw scores	Table 7 Year 1, T2 10th grade: 1.27 (5.74) 11th grade: -4.84 (5.50) 12th grade: 4.71 (6.78)	Page 347: SD is 100	1. use grade level average procedure to combine estimates 2. divide by DV SD
Brown and Andrabi (2021)	Test scores	Standardized scores	Table 5 column 1: .0881 (.0397)	-	-
Dee and Keys (2004)	Test scores	Raw scores	Table 4 columns 1 and 3 Math: 3.9 (1.5), Reading: (1.4)	Table 1 Standard Deviations Math: 28.8, Reading: 28.8	1. divide each estimate by DV SD 2. use subject average procedure to combine estimates
Duflo, Hanna, and Ryan (2012)	Test scores	Standardized scores	Table 9 column 4, Panel B: .14 (.06)	-	-
Eren (2019)	Test scores	Standardized scores	Table 5, 3rd year Postadoption (columns 2 and 4) Math: .189 (.072), ELA: .023 (.110)	-	1. use subject average procedure to combine estimates

Table A5 continued from previous page

Study	Outcome	Units	Impact	DV SD or mean	Calculation notes
Fryer (2013)	Test scores	Standardized scores	Table 4 pooled sample, TOT estimates ELA: -.016 (.010), Math: -.026 (.013) Table 5 Control, TOT English: -.003 (.043), Math: -.018 (.029)	-	1. use grade level average procedure to combine estimates
Fryer, Levitt, List, and Sadoff (2012)	Test scores	Standardized scores	Table 4 column scaled scores, pooled (column 3) Loss: .124 (.056), Gain: .051 (.062)	-	(separate estimates)
Gilligan et al. (2019)	Test scores	Standardized scores	Table 2 R2 Achievement, Both: .018 (.030)	-	-
Gilligan et al. (2019)	Attendance	Percentage points	Table 2 Attending Round 3, Both: .042 (.018)	Abstract: starting mean attendance rate is .56	1. divide by DV mean
Glewwe, Ilias, and Kremer (2010)	Test scores	Standardized scores	Table 3 Year 1 - Year 0, Panel A Incentive school: .048 (.061)	-	-
Goodman and Turner (2013)	Test scores	Raw scores	Table 1 2007-2008 Reading: -.372 (.490), Math: -.871 (.530)	Table 3 2007-2008, sd (from WP version of the paper) Reading: 35, Math: 40	1. divide each estimate by DV SD 2. use subject average procedure to combine estimates
Lavy (2002)	Test scores	Raw scores	Table 2 Average Score Secular Schools, 1997: 1.746 (.850)	Table 1 Secular Schools, Treated, Average Score SD: 21.088	1. divide by DV SD
Lavy (2009)	Pass rates	Percentage points	Table 4 Columns 2 and 8 Pass rate Math: .087 (.028), English: .039 (.020)	Table 5 Pass rate all quartiles - Math: .637, Reading: .795	1. divide each estimate by DV mean 2. use subject average procedure to combine estimates
Leaver et al. (2020)	Test scores	Standardized scores	Table 3 Year 1 Experienced P4P: .06 (.17)	-	-
Loyalka et. al. (2019)	Test scores	Standardized scores	Table 2 Full Sample Column 2, Any Incentive: .074 (.044)	-	-
Marsh et al. (2011)	Test scores	Standardized scores	Table 7.12 Year 1 Math, Controls: -.02 (.02)	-	-

Table A5 continued from previous page

Study	Outcome	Units	Impact	DV SD or mean	Calculation notes
Mbiti et al. (2019)	Test scores	Standardized scores	Table IV Combined (PCA), Panel B, Incentives, Year 1: .21 (.07)	-	-
Mbiti, Romer, and Scipper (2019)	Test scores	Standardized scores	Table 3 Combined, Incentivized, Year 1 Levels: .17 (.064), P4Pctile: .059 (.054)	-	(separate estimates)
Muralidharan and Sundararaman (2011)	Test scores	Standardized scores	Table 5 Year 1 on Year 0, Column 1, combined, incentive school: .149 (.042)	-	-
Obrero and Lombardi (2021)	Grades	Standardized scores	Table 4 columns 3 and 6, 8th Grade x Post Math: -.003 (.006), Language: .001 (.008)	-	1. use subject average procedure to combine estimates
Sojourner, Mkerezi, and West (2014)	Test scores	Standardized scores	Table 4 MCA, 1st year postadoption Reading: .023 (.011), Math: -.002 (.014)	-	1. use subject average procedure to combine estimates
Speroni et al. (2020)	Test scores	Standardized scores	Table 4 Impact Year 1 Reading: .034 (.016), Math: .020 (.020)	-	1. use subject average procedure to combine estimates
Springer et al. (2010)	Test scores	Standardized scores	Table 7 Year 1, all grades: .03 (.02)	-	-
Winters et al. (2009)	Test scores	Raw scores	Table 3 (t-stats in parentheses) Math: 3.52 (2.84), Reading: 3.29 (2.35)	Table 2, All Std. Dev Math: 21.54, Reading: 21.53	1. divide each estimate by DV SD 2. use subject average procedure to combine estimates

Notes: DV = dependent variable. SD = standard deviation. Subject average procedure = we compute the standard deviation of these average effects by following Chapter 24 of Borenstein, Hedges, Higgins, and Rothstein (2021) and assuming a correlation of 0.5 among test score subjects within the same grade as done by Jackson and Mackevicius (2021). Grade level average procedure = for estimates across various grades, we follow Chapter 23 of Borenstein, Hedges, Higgins, and Rothstein (2021) to use an assumed correlation of zero as done by Jackson and Mackevicius (2021). Subpopulation average procedure = to combine estimates across demographic subpopulations, we apply the methods outlined in Borenstein, Hedges, Higgins, and Rothstein (2021) in Chapter 24.