Appendix to "Do School Meals Boost Education in Low- and Middle-Income Countries?"

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This is a background note to accompany a blog published in December 2024 reviewing the body of evidence from impact evaluations on school meals programmes.

A1. Search strategy and source of studies

We limited our search to studies that are: (a) published in 2010 or later, (b) impact evaluations of in-school meals implemented in low- and middle-income countries, and (c) reports educational outcomes (enrollment, attendance, learning, among others) and later-life outcomes.

This rapid review builds off existing reviews on school meals. We reviewed eligible studies cited in Snilstveit et al. (2015), Wang et al. (2021), Wall et al. (2022), Yussuf et al. (2020), Kristjansson et al. (2016), Cohen et al. (2021), and Bedasso (2022). We reviewed the studies that cite the eligible studies from these reviews through Google Scholar. We also conducted a general search of school meals in Google Scholar and several institutional organizations (World Bank, GPE, IADB, ADB). Finally, we added other studies known to authors to be eligible.

We encoded details of the studies (authors, year of publication), details of the programme implementation (description of the program, countries of coverage, level of schooling), method of identification of impact (randomized controlled trial, difference-in-differences, regression discontinuity, instrumental variable, or matching), impacts (point estimates, heterogeneity), and cost (actual cost, cost-effectiveness).

A2. Aggregating effect sizes

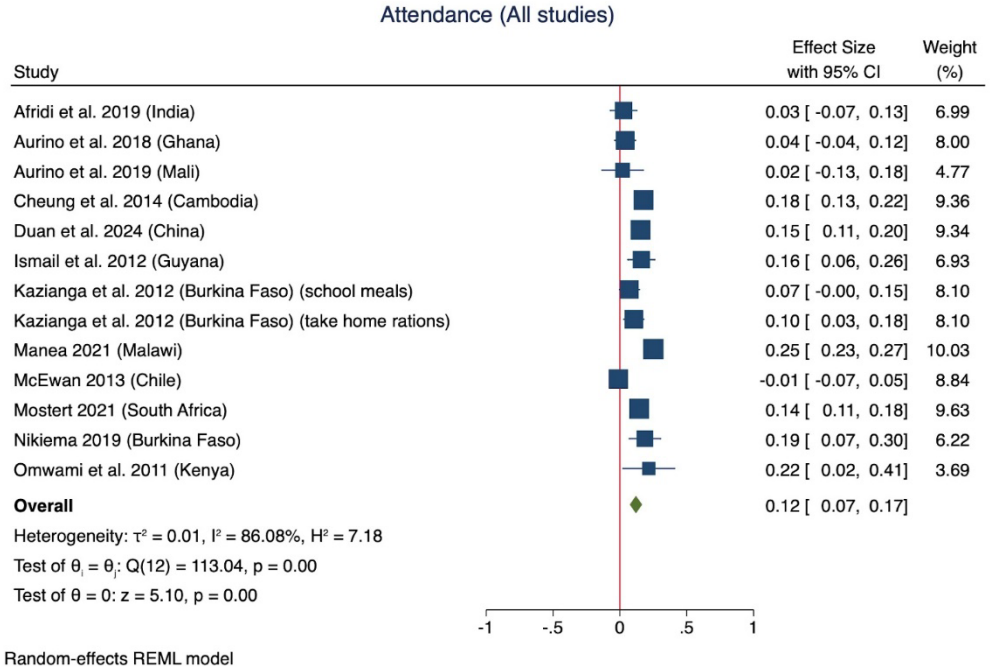
We recorded the point estimates with the goal of compiling the effect sizes across studies and treatment arms by category of outcome. When the effect size is not available, we follow equation 4.18 in Borenstein et al. (2009) to compute the Cohen's d as an estimate of this effect size. Many studies report multiple outcomes under the same category (e.g. math test score and reading test score for the same study, both under the category of learning outcomes). These outcomes are for the same group and are compared against the same control which violates the assumption of independent

effect sizes for univariate multi-analyses. To address this, we first calculate a synthetic mean of these effect sizes within the same study (but for the same category of outcome) by using equation 24.4 in in Borenstein et al. (2009), implemented via the agg command in R from the Meta-analysis with Mean Differences package (Del Re and Hoyt 2022). Finally, we aggregate across studies and across treatment arms using Stata's meta-analysis package under a random effects model (commands meta summarize and meta forestplot) (StataCorp 2019). We choose the random effects model that assumes that the studies' true effect sizes are different and that the studies only capture a random sample of the larger population of studies. In contrast, the fixed-effect model assumes that there is one true effect across all the studies and that all the studies in the meta-analysis define the whole population of interest. Given the difference in implementation across school meal programs and the wide range of the contexts in which these programs are employed, we believe the random effects model to be appropriate. The default weighting scheme employed here uses the inverse of the variances of their effect estimates such that more precise estimates and those from larger studies with smaller standard errors have more influence on the final aggregate (Higgins et al., 2022).

A3. Effect sizes of studies by outcome of interest

Figure A1. Impact of school feeding on attendance outcomes

Panel A: All studies in the sample



Panel B: Studies that employ randomized controlled trial, difference-in-differences or regression discontinuity in its estimation method

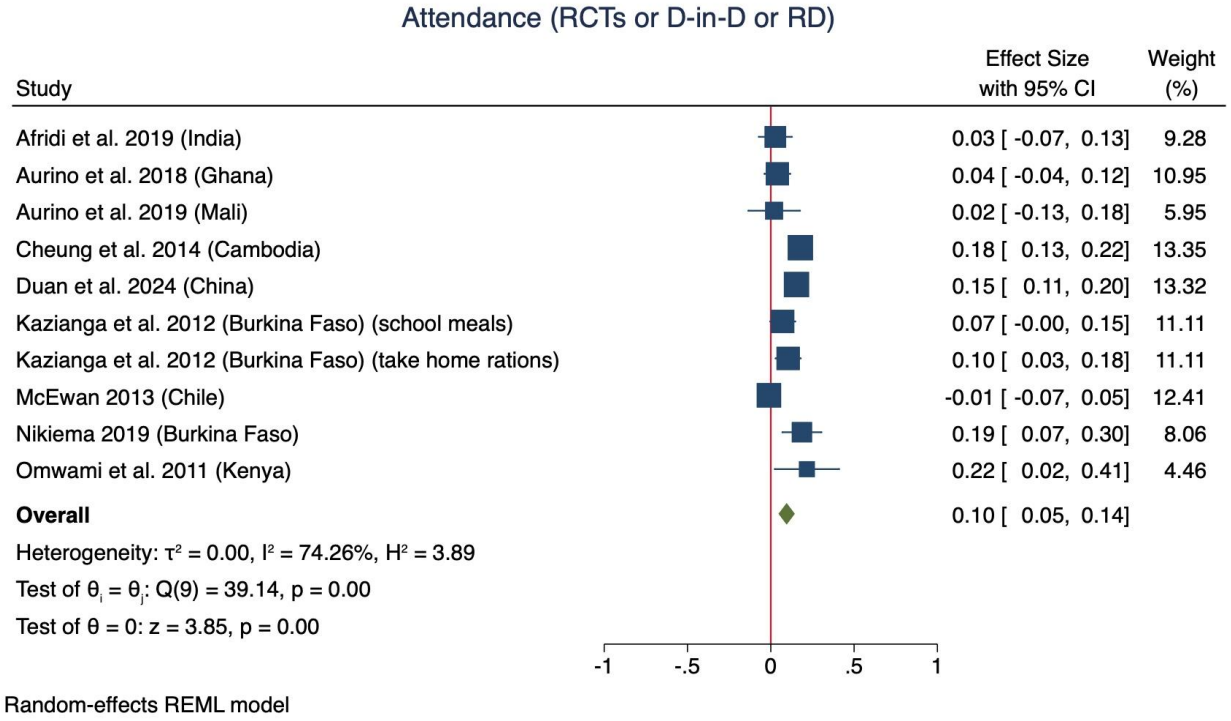
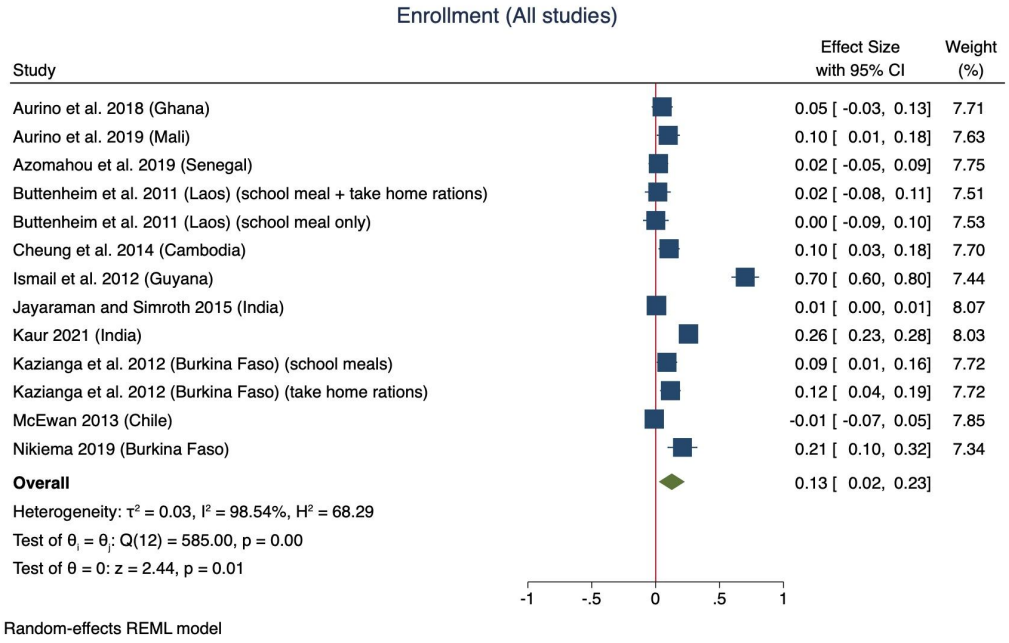


Figure A2. Impact of school feeding on enrollment outcomes

Panel A: All studies in the sample



Panel B: Studies that employ randomized controlled trial, difference-in-differences or regression discontinuity in its estimation method

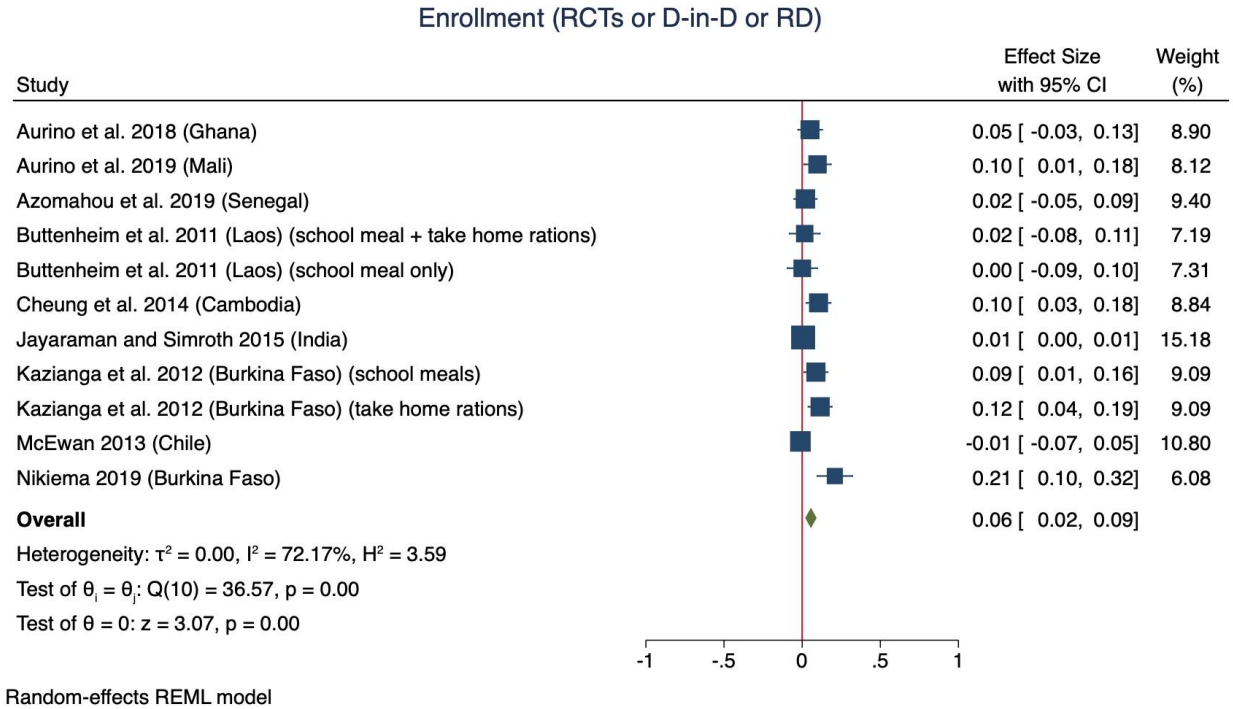
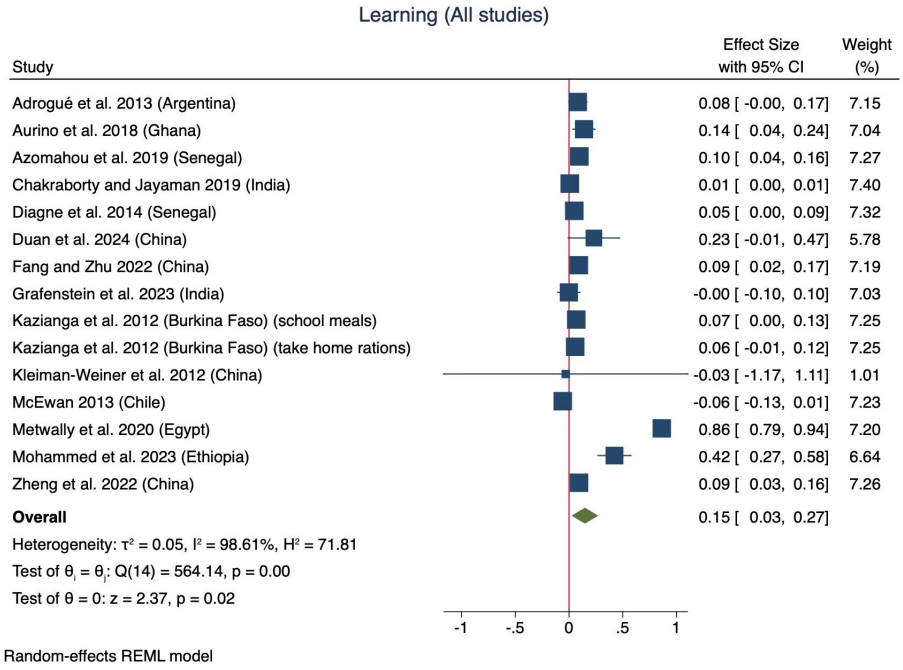


Figure A3. Impact of school feeding on learning outcomes

Panel A: All studies in the sample



Panel B: Studies that employ randomized controlled trial, difference-in-differences or regression discontinuity in its estimation method

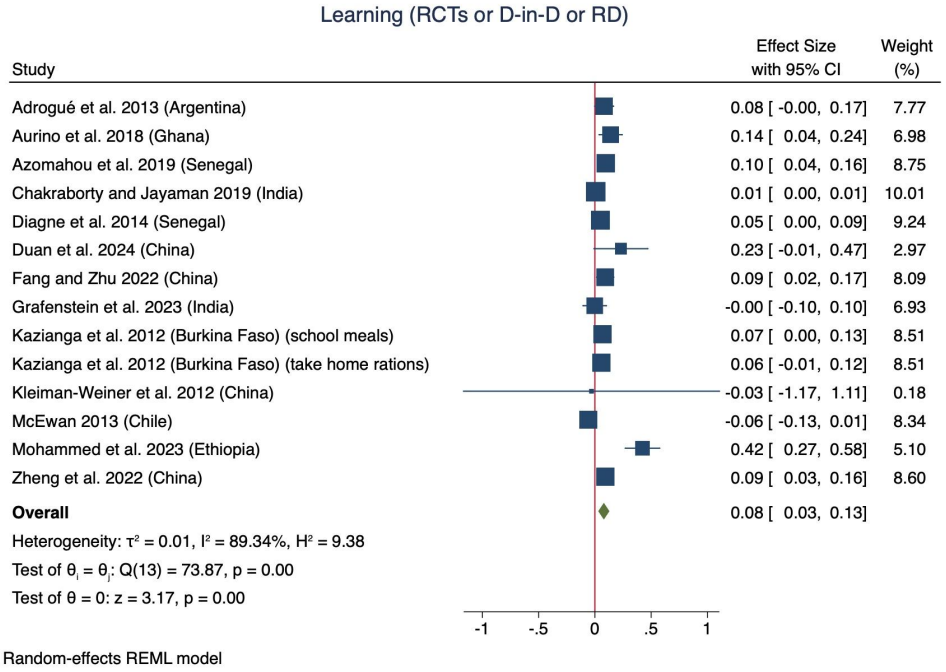
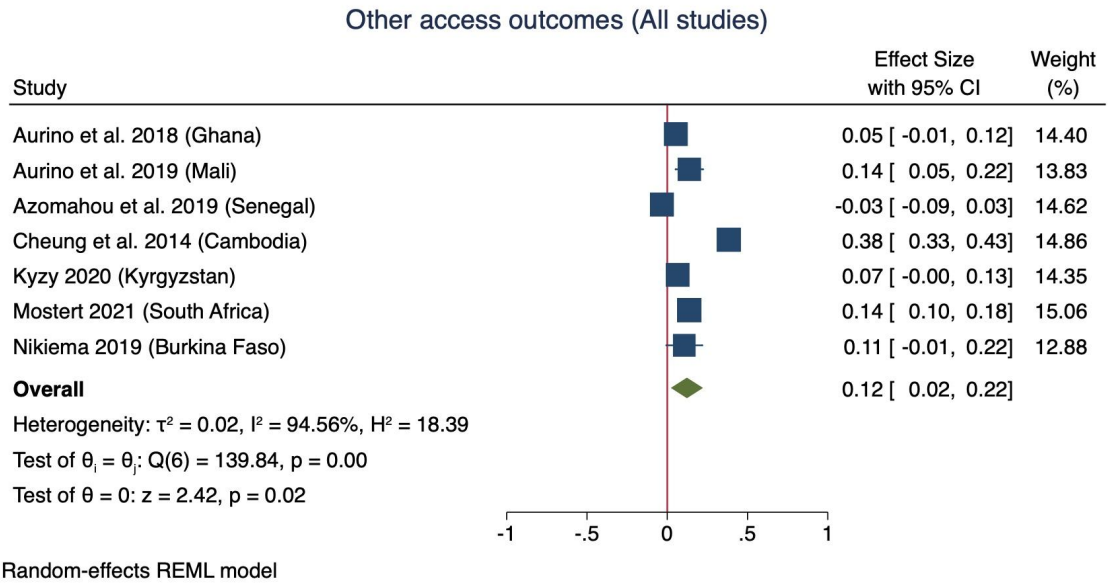


Figure A4. Impact of school feeding on other access outcomes such as rates of dropout or grade repetition

Panel A: All studies in the sample



Panel B: Studies that employ randomized controlled trial, difference-in-differences or regression discontinuity in its estimation method

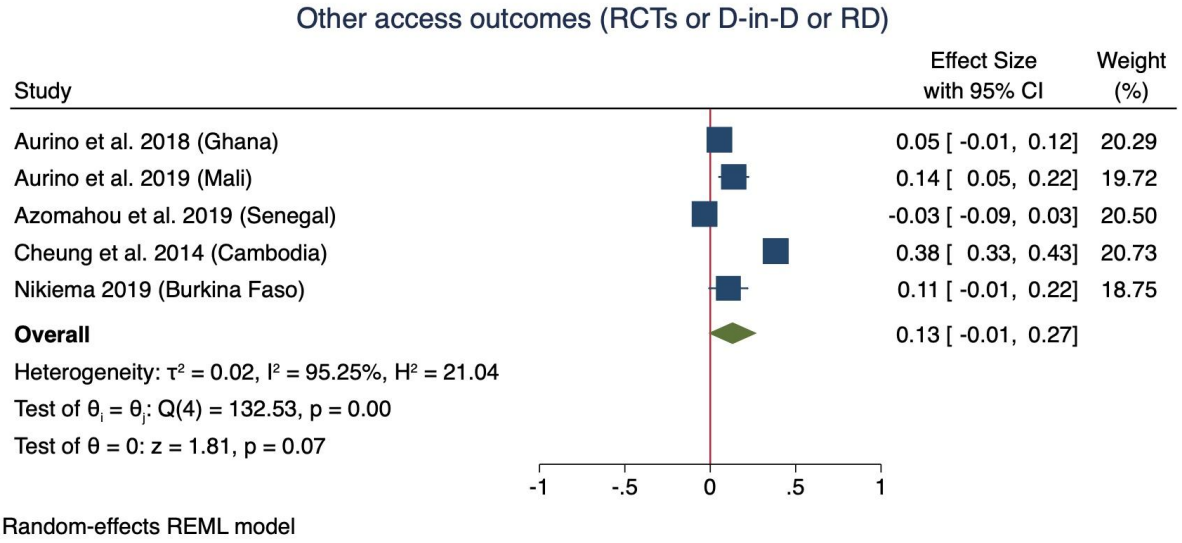
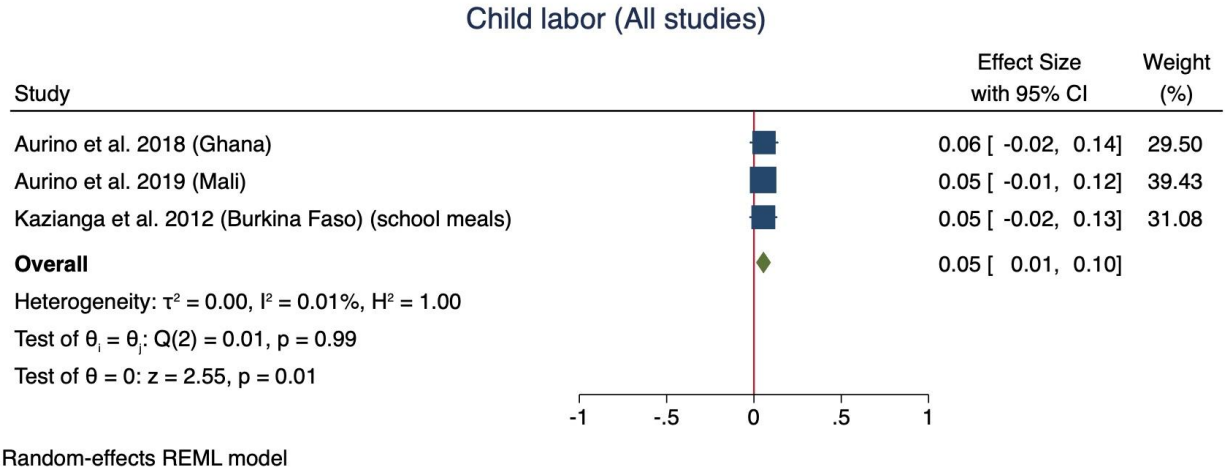


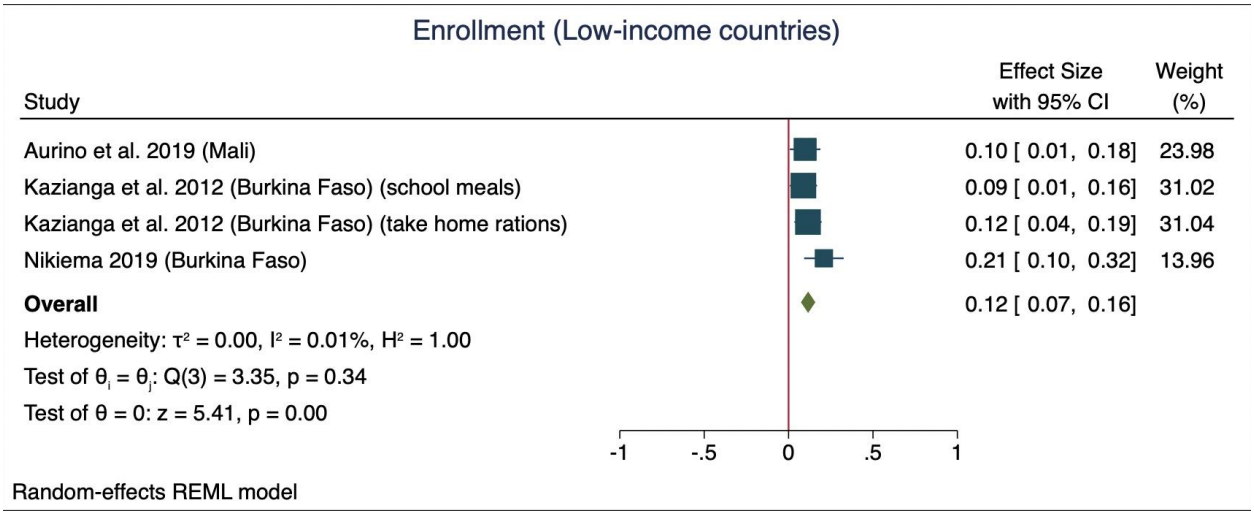
Figure A5. Impact of school feeding on child labor outcomes



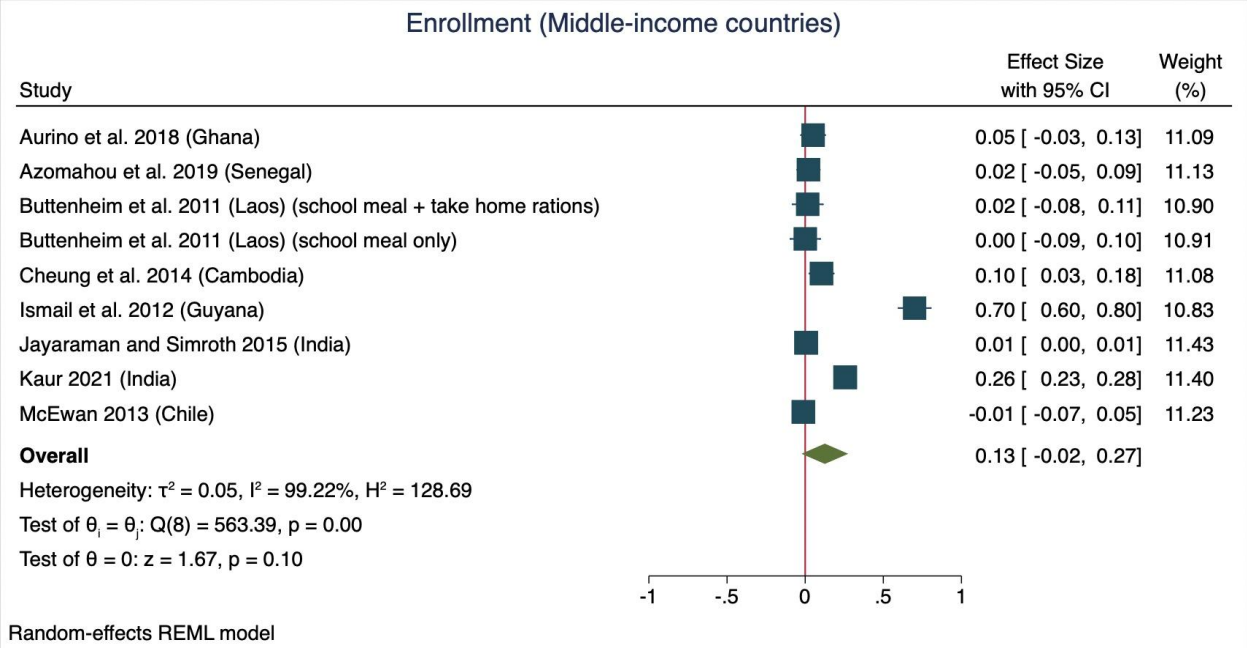
Note: All three studies use either a randomized controlled trial or a difference-in-differences as an estimation method

Figure A6. Impact of school feeding by countries' income level

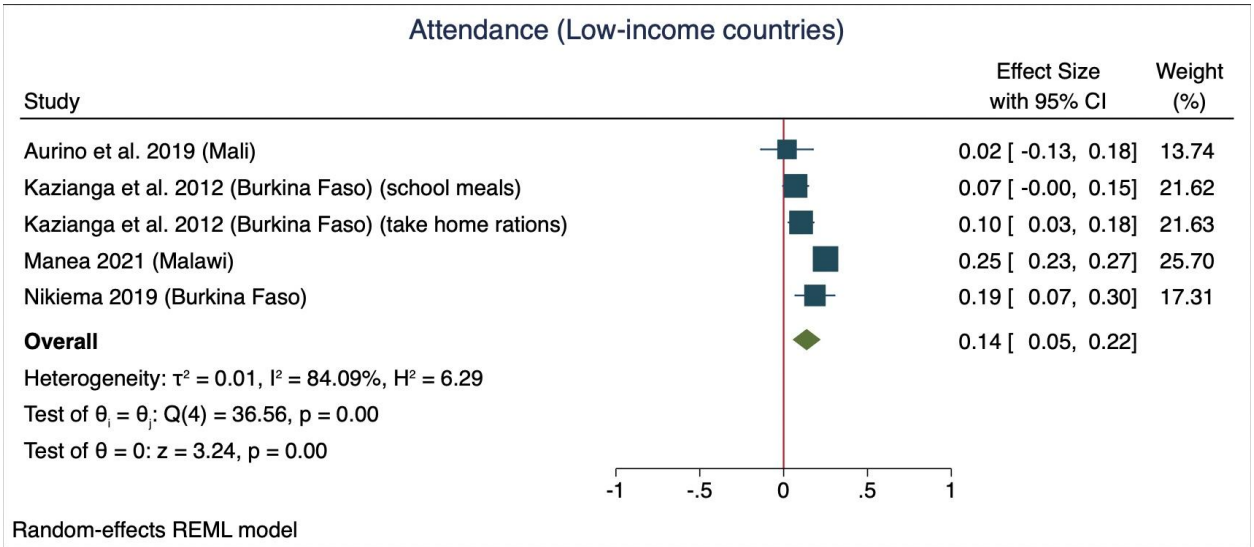
Panel A: Enrollment for low-income countries



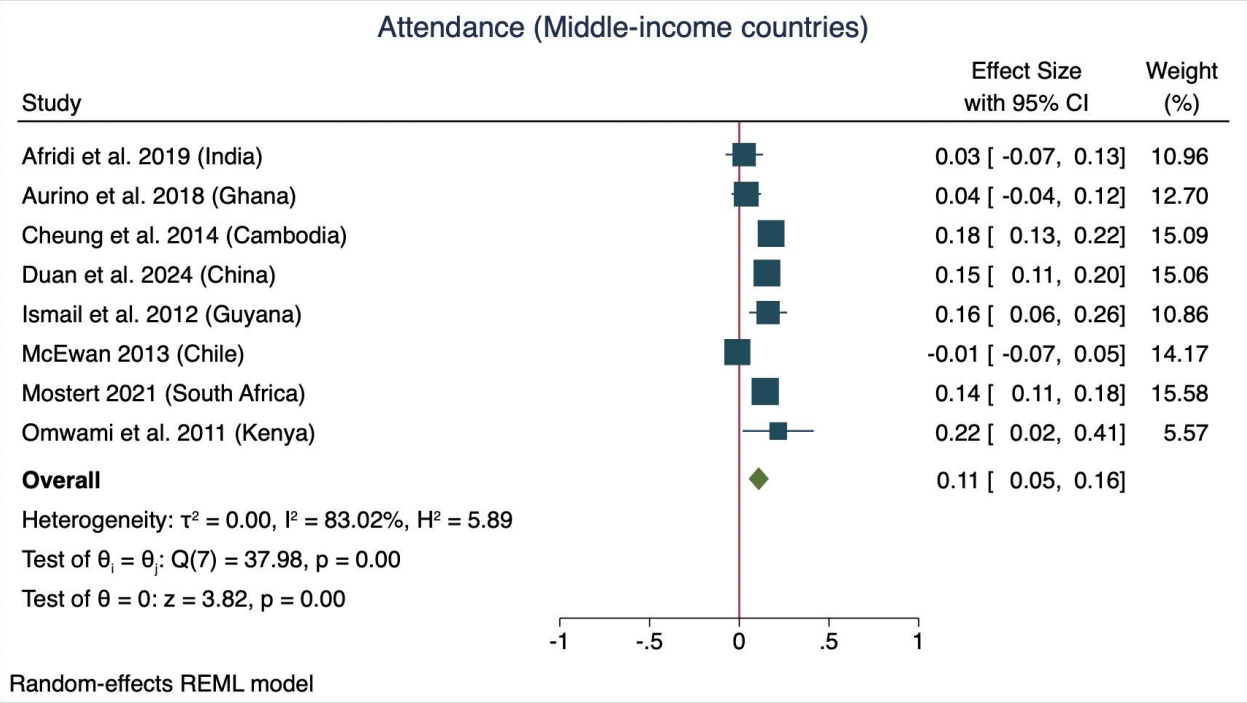
Panel B: Enrollment for middle-income countries



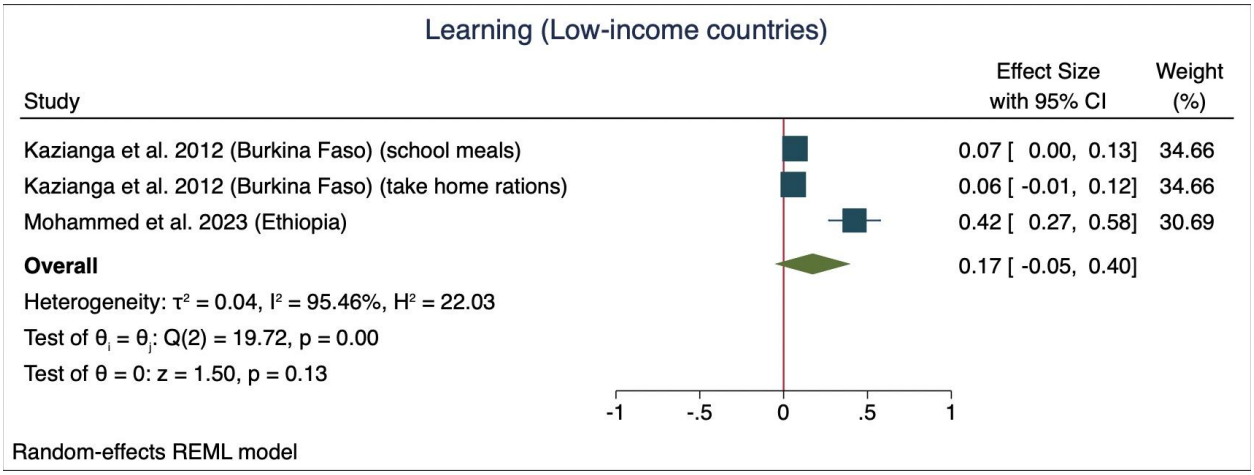
Panel C: Attendance for low-income countries



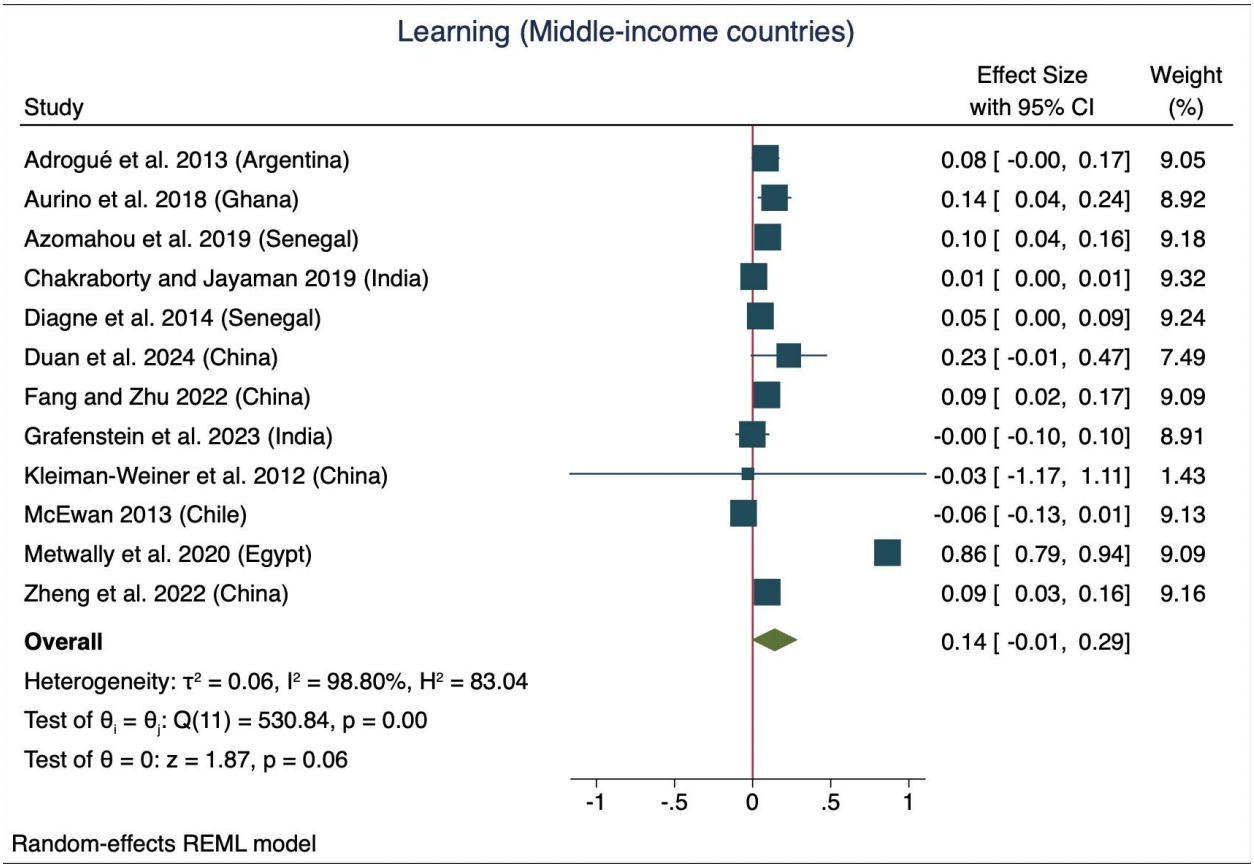
Panel D: Attendance for middle-income countries



Panel E: Learning for low-income countries



Panel F: Learning for middle-income countries



Note: Guyana and Chile are currently considered high-income countries but were classified as middle-income countries when the impact evaluations were conducted.

A4. Description of the sample of studies

Appendix Table A1. List of the 27 studies found in the rapid review. Studies marked with an * are those not included in previous reviews and are new additions to this analysis.

Study	Method to identify impact	Implementation level	Program description	Summary of impacts	Cost data
Studies that use a randomized controlled trial, difference-in-differences, or regression discontinuity (21 studies)					
Adrogué and Orlicki (2013) (Argentina)	D-in-D	Primary	In-school feeding program of breakfast and/or lunch implemented in public schools	- The program improved math test scores by 0.84 points (standard error of 0.79) but this is not statistically significant. - The impact on language test scores is both positive and statistically significant (improvement of 2 points with standard error of 0.73, p-value < 0.01).	No cost data
Afridi et al. (2020) (India)	D-in-D	Primary	India's midday meal program as it transitioned from pre-packaged processed food to home-cooked meals in 2003	The study reports "a 3 percentage point increase in average monthly attendance, with large effects for early grades." Heterogeneous effects: They also report bigger impacts for girls than boys, although girls attend morning classes while boys attend afternoon classes so this could be reflective of the difference in timing rather than gender.	"The current cooking cost is about US¢6 per meal, or $12 for a 200-day school year. To put these figures in perspective, the cost of running the Food for Education program in Bangladesh was $25 in 1996 and the cost of school meals administered by the World Food Program was $15.79 in 2005 on average (Ahmed & Del Ninno, 2002; Adelman, Gilligan, & Lehrer, 2008)"

Aurino et al. (2020) (Ghana)	RCT	Primary	Ghana School Feeding Programme (GSFP) provides cooked lunches to public schools	Access to the program led to between 0.12 and 0.16 standard deviation improvement in test scores. Heterogeneous effects: Effects on test scores are almost double for girls (test scores improved by up to 0.20 standard deviations) and for those living in the disadvantaged northern regions (0.25 to 0.30 standard deviations).	"back-of-the-envelope calculations based on the Government of Ghana's transfer to caterers and an average of 200 school-days per year suggest that the program costed about US$66 per child per year in 2015/16"
Aurino et al. (2019) (Mali)	D-in-D	Primary	World Food Programme implemented an emergency school feeding (cooked lunch) during the conflict in Mali in addition to a generalized food distribution system.	School feeding increased enrollment by 10 percentage points and school completion by half a year. This effect is driven by those high-intensity conflict areas. However, the generalized food distribution system led to 20 percent less attendance for boys, with the effect also concentrated in the high-conflict areas. Heterogeneous effects: School feeding also led to lower child labor participation especially for girls. Child labor went up for boys receiving the food assistance.	No cost data

Azomahou et al. (2019) (Senegal)	RCT	Primary	WFP provided maize for cooked hot lunches provided through school canteens. Each student were asked to contribute 200 CFA Franc to purchase other ingredients such as fresh vegetables, fish or meat, and other grains.	Despite non-compliance and non-response, the study estimates that the program improved test scores by “6.37 percentage points for aggregate score, 5.85 percentage points for French score and 6.81 percentage points for maths score” all statistically significant at 1 percent.	"Cost-effectiveness analysis shows that deworming intervention is more cost effective than school meals." Table 9 shows cost effectiveness "For the cost of the canteen, relying on information from the Ministry of Education and the WFP, the annual cost per pupil is estimated to be approximately 13,100 CFA francs. For the cost of the deworming, information from the Ministry of Education and the division of the school medical supervision (DCMS) allowed us to estimate that the annual cost per pupil is approximately 74 CFA francs."
Buttenheim et al. (2011) (Laos)	D-in-D	Primary	The school feeding program included a "daily snack made from corn-soya blend" and additional take-home rations of canned fish and rice.	The evaluation found no statistically significant impact on enrollment on average, but did find some positive impacts on enrollment and earlier age at school entry in some of the districts. Similarly, effects on nutrition seem to be positive but not statistically significant.	No cost data

Chakraborty and Jayaman (2019) (India)	D-in-D	Primary	India's midday meal program that provides cooked lunch, often "cooked rice or wheat, depending on the local staple, mixed with lentils or jaggery, and sometimes supplemented with oil, vegetables, fruits, nuts, eggs or dessert at the local level."	The program led. to positive and statistically significant test scores: “average test scores increase steadily by about 0.035 points for reading and 0.030 points for math with each additional month of exposure.”	"According to our calculations, discussed in Section 2, the cost of midday meal provision is 10 USD per child per year.29 The marginal cost of midday meals is thus almost three times higher than that of Balsakhis or contract teachers…at the two year mark, reading scores increase by 0.013σ and math scores by 0.011σ for each additional dollar spent on midday meals."
Cheung et al. (2015) (Cambodia)	D-in-D	Primary	"Children were provided with one meal per day (breakfast) before school, which contained the standard WFP ration of rice, canned fish, vitamin A-fortified vegetable oil and iodised salt" in addition to take-home rations and an accompanying deworming program in some location.	Enrollment improved by 5 percent for schools receiving on-site feeding and take-home rations (not statistically significant), and 14 percent for those receiving the full package of on-site feeding, take-home rations and deworming.	"Table 6 shows that the average cost for on-site breakfast is around US$ 8 per child per year; take-home rations cost US$ 37 per girl, so the average cost for breakfast in school plus take-home to poor girls is US$ 10 per child" and comparisons against deworming. "The participating schools were required to provide fresh vegetables, water and fuel for the preparation of the WFP-supplied commodities. Parents and community members who volunteered to prepare the hot meal received a dry ration of rice for their help. The costs of providing the meals, apart from WFP’s food provision, were born by the community"

Diagne et al. (2014) (Senegal)	RCT	Primary	Hot lunches provided through school canteens. The meals consist of maize, legumes, vegetable oil and iodized salt.	The canteen led to higher test scores in both mathematics (12 points, significant at 5 percent) and French (9 points, significant at 5 percent). Heterogeneous effects: Results were driven by children younger than 10 years old.	No cost data
Duan et al. (2024) (China)*	D-in-D	Primary and junior high school	The China Student Nutrition Improvement Plan is nationwide government project that provides free breakfast and lunch.	The program improved math test scores by 0.39 Standard deviations (significant at 1 percent) and verbal test scores by 0.08 standard deviations (not significant). Heterogenous effects: Effects are driven by students from low-income families. The increase in math test scores is particularly strong for boys.	No cost data
Fang and Zhu (2022) (China)	D-in-D	Primary and junior high school	An updated evaluation of the China Student Nutrition Improvement Plan with a subsidy of three yuan per student per day (which increased to 4 yuan in 2014) from the government. The program also "provided financial support for schools to build and improve canteen facilities."	"The estimates indicate that early exposure to the SNIP [ages 6 to 15] increased word by 2.497 points or 0.337 standard deviation and math test scores 1.105 points or 0.195 standard deviations." Heterogenous effects: The effects are stronger for children from low-income families.	The government provided a subsidy to schools of three yuan per student per day which increased to four yuan in 2014

Grafenstein et al. (2023) (India)*	RCT	Primary	The India Midday Meal program provides a daily lunch with a "predefined menu and content – a minimum of 450 calories and 8–12 g of protein – on at least 200 days per year to all primary and upper primary school."	The program has no statistically significant effects on either cognitive outcome, math test scores, or reading test scores.	"The programme had an average cost of approximately US¢6.4 per meal for primary school children and US¢9.6 per meal for upper primary school children, which amounts to an annual cost of $13 for primary and $19 for upper primary for the mandated 200-day school year"
Jayaraman and Simroth (2015) (India)	D-in-D	Primary	Another impact evaluation of the India's mid-day scheme that provides hot lunch to students.	The mid-day meal program led to "13 percent increase in primary school enrollment, amounting to around six additional students in each primary school" which translates to an increase in net primary enrollment rate from 84 percent to 87 percent. Heterogenous effects: The increase in enrollment is driven by "a large and statistically significant response in grade 1, where enrollment increased by approximately 24 percent".	"On average, before the introduction of midday meals, a school had 120 students. The policy led to an increase of approximately six students per primary school. Using the cost data from Section II, it follows that the total cost of midday meals per year for a school during our period of observation is (119 + 6) students × Rs 1.16 per student × 200 days = Rs 29,000. Therefore, per year it costs 29, 000/6 ≈ 4833 Rs for each additional student. At the average exchange rate during our period of observation, this amounts to approximately $100 per additional child per year."

Kazianga et al. (2012) (Burkina Faso)	RCT	Primary	Comparison of two education programs: an in-school lunch or take-home rations which provide girls with 10 kg of cereal flour each month.	Both in-school lunch and take-home rations improved enrollment by 3 to 5 percentage points. Math test scores improved for both boys and girls under both treatments. Heterogenous effects: The impact on test scores is higher and more precise for girls (11 percent, significant at 1 percent for those under in-school meals) versus boys (8 percent, significant at 10 percent).	"The school meals cost $41.46 per student per year while the take home ration was $51.37."
Kleiman-Weiner et al. (2013) (China)	RCT	Primary	The study evaluated two interventions: "a six month long chewable vitamin treatment in which students were given a daily chewable vitamin with iron; and a six month long treatment in which students were given a daily cooked egg."	There was no significant effect on math test scores for schools where students received a daily cooked egg.	"The daily cost of a chewable vitamin (at a wholesale price) was about 0.4 yuan per day. The daily cost of an egg was between 0.7 and 0.8 yuan per day. In addition, the time and effort required to procure eggs (on a weekly basis); prepare the eggs (which required fuel and the time of a cook); and distribute eggs (which required about 15 min of the homeroom teacher's time – to get the eggs; pass them out; allow the children to eat them; and clean up) was greater than the time of procuring chewable vitamins (which took effort and time only once during the school year – at the start of the program) and distributing the chewable vitamins (which required only 5 min per day)."

McEwan (2013) (Chile)	Regression Discontinuity	Primary	School Feeding Program or Programa de Alimentación Escolar initially implement by the government and the outsourced to private organizations. "Primary schools were eligible to receive one of three options: (1) breakfasts with 250 kcal/day; (2) breakfast/lunch or lunch/snack combinations with 700 kcal/day; and (3) breakfast/lunch or lunch/snack combinations with 1000 kcal/day" depending on the school's vulnerability index.	There is “no evidence” that the increase in caloric intake provided by the school meals improved enrollment, daily attendance, grade repetition, or test scores.	No cost data
Mohammed et al. (2023) (Ethiopia)*	D-in-D	Primary (but targeted at adolescents still in this level)	The program provided corn-soya porridge (about 650 kilo calories) a day to students.	Beneficiaries of the program had statistically significant higher grade-point average than non-beneficiaries (2.32 points, 95 percent confidence interval of 1.47 to 3.17 points).	No cost data

Nikiema (2019) (Burkina Faso)	D-in-D	Primary	Catholic Relief Services (CRS) school feeding programme called Beoog Biiga that provides both on-site daily meal and a take-home ration.	Take-home rations improved attendance by 8.4 percentage points (significant at 1 percent). Heterogenous effects: Impact on attendance is driven by boys (8.4 percentage points increase versus 6 percentage points for girls). Take-home rations increased girls' enrolment more than that of boys ("six girls versus five boys").	No cost data
Omwami et al. (2011) (Kenya)	RCT	Primary	One meal a day served in school consisting of a fortified local staple-based snack made from mixture of maize and beans with either meat, milk, or adjusted for energy intake.	Access to the meals improved student attendance by between 1 to 4 percent (significant at the 5 percent level).	No cost data
Zheng et al. (2023)(China) *	D-in-D	Primary and junior high school	China's Nutrition Improvement Program (NIP) provided school subsidies for free breakfast and/or lunch, and some schools also received financial aid to improve kitchen or build canteens.	Exposure to NIP improved students cognitive test scores by between 10 to 20 percentage points, significant at the 1 percent level.	No cost data

Zhou et al. (2024) (China)*	D-in-D	Primary and junior high school	China's Nutrition Improvement Program (NIP) provided school subsidies for free breakfast and/or lunch, and some schools also received financial aid to improve kitchen or build canteens.	"The results show that early-life exposure to the NIP has increased adulthood employment probability by 6.5 percentage points. Childhood exposure to the NIP has also resulted in an average increase of 12.4% in adult hourly wages and 10.3% in annual income."	No cost data
Studies that use an instrumental variable or matching (6 studies)					
Ismail et al. (2012) (Guyana)	Matching on student characteristics using three rounds of surveys	Primary	Guyana's Hinterland Community-Based School Feeding Program provided lunch to students for the 192 school days.	"SFP increased average attendance by 4.3 percent between 2007 and 2009."	"The average SFP cost is around US$230 per school per day10. The DMP has a lower average cost per day of around US$19311. However, the DMP expanded to 5,700 schools which allowed the program to have economies of scale based on a large numbers of schools. This reduces substantially the sunk costs to start the program, since they are averaged to the total number of schools. Conversely, the SFP has a cost of $0.90 USD compared to the $1.14 USD that cost the DMP per student per school-day."

Kaur (2021) (India)*	IV (uses presence of the policy in the state because of uneven implementation as instrument; two surveys rounds covering pre- and post-treatment)	Primary	Another impact evaluation of the India's mid-day scheme that provides hot lunch to students.	The program led to substantial improvements in enrollment: "a one percent increase in the fraction of students getting meals increases the probability of primary school enrollment by about 0.158–0.188 percentage points." The impact on gross enrollment for Grade 1 is positive but not statistically significant. Heterogenous effects: The impact on enrollment is statistically higher for girls (0.203 percentage points, standard error of 0.061 and significant at the 1 percent level) than for boys. Similarly, the impact on enrollment is higher for disadvantaged castes (0.204 percentage points, standard error of 0.058 and significant at the 1 percent level).	No cost data

Kyzy (2019) (Kyrgyzstan)*	Cohort analysis (children born before the program launched and were not exposed were compared to those born in time to receive the program when they went to school)	Primary	A nationwide school feeding program (lunch): "meals include 200 grams of sweet bread roll with hot milk or another meal that is nutritionally equivalent, such as biscuits with tea."	"An additional year of past treatment reduces the odds of missing school by 10%."	$0.1 (7 Kyrgyz Soms) per student per day
Manea (2021) (Malawi)*	IV (villages which received the treatment are compared to those which did not, controlling for characteristics used to determine eligibility to the program)	Primary	Combined evaluation of students who had access to WFP or Mary's Meals following government issued guidelines in food preparation.	School feeding has increased enrollments by 6 percentage points (standard error of 0.018, significant at the 1 percent level). The effect on average retention is positive but small and statistically insignificant (less than 1 percentage point, standard error of 0.009). Heterogenous effects:Children living in food-insecure areas see higher impacts of up to 8 percentage points in enrollment and 1-2 percentage points higher retention rate than average.	No cost data

Metwally et al. (2020) (Egypt)*	Matching on schools based on geographic characteristics and matching on students based on age and sex. Endline outcomes only.	Primary	The snack consists of 100g pie made from vitamins and micro-nutrient fortified flour served before classes start.	"Children who took the meal had better scores on visual memory, auditory vigilance tests (9.71 Å} 2.80 vs. 7.45 Å} 3.25; 25.02 Å} 3.36 vs. 10.82 Å} 8.92, respectively, P < 0.001), the afternoon attention and working memory test (8.20 Å} 2.21vs. 7.75 Å} 3.05) (P < 0.001), but less score of externalizing behavior (P < 0.001) than the control group."	No cost data
Mostert* (2021) (South Africa)	IV	Primary	Program administered by the Department of Education that provides one meal a day consisting of starch, protein, and fresh vegetable and fruit from an approved meal	The program reduced illness-linked absenteeism by between 0.5 to 1.2 percentage points (significant at the 5 percent level). The program also leads to improved rate of completing the grade level by 2.5 to 4 percentage points (significant at the 5 percent level).	No cost data

References

Adrogue, Cecilia, and Maria Eugenia Orlicki. 2013. "Do In-School Feeding programs Have an Impact on Academic Performance? The Case of Public Schools in Argentina." *Education Policy Analysis Archives* 21 (50). https://eric.ed.gov/?id=EJ1015379.

Afridi, Farzana, Bidisha Barooah, and Rohini Somanathan. 2020. "Designing Effective Transfers: Lessons from India's School Meal programme." *Review of Development Economics* 24 (1): 45–61. https://doi.org/10.1111/rode.12635.

Aurino, Elisabetta, Aulo Gelli, Clement Adamba, Isaac Osei-Akoto, and Harold Alderman. 2020. "Food for Thought? Experimental Evidence on the Learning Impacts of a Large-Scale School Feeding program." *Journal of Human Resources*, 1019. https://doi.org/10.3368/jhr.58.3.1019-10515R1.

Aurino, Elisabetta, Jean-Pierre Tranchant, Amadou Sekou Diallo, and Aulo Gelli. 2019. "School Feeding or General Food Distribution? Quasi-Experimental Evidence on the Educational Impacts of Emergency Food Assistance during Conflict in Mali." *The Journal of Development Studies* 55 (sup1): 7–28. https://doi.org/10.1080/00220388.2019.1687874.

Azomahou, Théophile T., Abdoulaye Diagne, and Fatoumata L. Diallo. 2019. "Non-Compliance and Non-Response in Randomised School Meals Experiment: Evidence from Rural Senegal." *Journal of African Economies* 28 (5): 533–57. https://doi.org/10.1093/jae/ejz008.

Bedasso, Biniam. 2022. "Chapter 2. Feed All the Kids." In *Schooling for All: Feasible Strategies to Achieve Universal Education*, edited by Justin Sandefur. Center for Global Development. B t.

Borenstein, Michael, Larry V. Hedges, Julian P. T. Higgins, and Hannah R. Rothstein. 2009. *Introduction to Meta-Analysis*. John Wiley & Sons, Ltd. https://onlinelibrary.wiley.com/doi/book/10.1002/9780470743386.

Buttenheim, Alison, Harold Alderman, and Jed Friedman. 2011. "Impact Evaluation of School Feeding Programs in Lao People's Democratic Republic." *Journal of Development Effectiveness* 3 (4): 520–42. https://doi.org/10.1080/19439342.2011.634511.

Chakraborty, Tanika, and Rajshri Jayaraman. 2019. "School Feeding and Learning Achievement: Evidence from India's Midday Meal Program." *Journal of Development Economics* 139 (June): 249–65. https://doi.org/10.1016/j.jdeveco.2018.10.011.

Cheung, Maria, and Maria Perrotta Berlin. 2015. "The Impact of a Food for Education Program on Schooling in Cambodia." *Asia & the Pacific Policy Studies* 2 (1): 44–57. https://doi.org/10.1002/app5.21.

Cohen, Juliana F. W., Amelie A. Hecht, Gabriella M. McLoughlin, Lindsey Turner, and Marlene B. Schwartz. 2021. "Universal School Meals and Associations with Student Participation, Attendance, Academic Performance, Diet Quality, Food Security, and Body Mass Index: A Systematic Review." *Nutrients* 13 (3): 911. https://doi.org/10.3390/nu13030911.

Del Re, AC, and William Hoyt. 2022. "Package 'MAd': Meta-Analysis with Mean Differences." https://cran.r-project.org/web/packages/MAd/MAd.pdf.

Diagne, Abdoulaye, Mouhamadou Moustapha LO, Ousmane Sokhna, and Fatoumata L. Diallo. 2014. "Evaluation of the Impact of School Canteen Programs on Internal Efficiency of Schools, Cognitive Acquisitions and Learning Capacities of Students in Rural Primary Schools in Senegal." SSRN Scholarly Paper ID 3167973. Rochester, NY: Social Science Research Network. https://papers.ssrn.com/abstract=3167973.

Duan, Xueyi, Yinhe Liang, and Xiaobo Peng. 2024. "Free School Meals and Cognitive Ability: Evidence from China's Student Nutrition Improvement Plan." *Health Economics* 33 (7): 1480–1502. https://doi.org/10.1002/hec.4824.

Evans, David K., and Fei Yuan. 2022. "How Big Are Effect Sizes in International Education Studies?" *Educational Evaluation and Policy Analysis* 44 (3): 532–40. https://doi.org/10.3102/01623737221079646.

Fang, Guanfu, and Ying Zhu. 2022. "Long-Term Impacts of School Nutrition: Evidence from China's School Meal Reform." *World Development* 153 (May): 105854. https://doi.org/10.1016/j.worlddev.2022.105854.

Grafenstein, Liza von, Abhijeet Kumar, Santosh Kumar, and Sebastian Vollmer. 2023. "Medium-Run Impacts of Iron-Fortified School Lunch on Anaemia, Cognition, and Learning

Outcomes in India*." *Oxford Bulletin of Economics and Statistics* 85 (6): 1262–94. https://doi.org/10.1111/obes.12559.
Ismail, Suraiya, Christian Borja-Vega, Angela Demas, and Edward Jarvis. 2012. "Guyana's Hinterland Community-Based School Feeding Program." World Bank. https://documents.worldbank.org/curated/en/690761468031534184/pdf/892760WP0P08930hool0Feeding0program.pdf.
Jayaraman, Rajshri, and Dora Simroth. 2015. "The Impact of School Lunches on Primary School Enrollment: Evidence from India's Midday Meal Scheme." *The Scandinavian Journal of Economics* 117 (4): 1176–1203.
Kaur, Randeep. 2021. "Estimating the Impact of School Feeding Program: Evidence from Mid Day Meal Scheme of India." *Economics of Education Review* 84 (October): 102171. https://doi.org/10.1016/j.econedurev.2021.102171.
Kazianga, Harounan, Damien de Walque, and Harold Alderman. 2012. "Educational and Child Labor Impacts of Two Food-for-Education Schemes: Evidence from a Randomised Trial in Rural Burkina Faso†." *Journal of African Economies* 21 (5): 723–60. https://doi.org/10.1093/jae/ejs010.
Kleiman-Weiner, Max, Renfu Luo, Linxiu Zhang, Yaojiang Shi, Alexis Medina, and Scott Rozelle. 2013. "Eggs versus Chewable Vitamins: Which Intervention Can Increase Nutrition and Test Scores in Rural China?" *China Economic Review* 24 (March): 165–76. https://doi.org/10.1016/j.chieco.2012.12.005.
Kristjansson, E. A., A. Gelli, V. Welch, T. Greenhalgh, S. Liberato, D. Francis, and F. Espejo. 2016. "Costs, and Cost-Outcome of School Feeding Programs and Feeding Programs for Young Children. Evidence and Recommendations." *International Journal of Educational Development*, Aid, Education Policy, and Development, 48 (May): 79–83. https://doi.org/10.1016/j.ijedudev.2015.11.011.
Kyzy, Akylai Muktarbek. 2019. "School Attendance: Demographic Differences and the Effect of a Primary School Meal Program in Kyrgyzstan." *Educational Research and Evaluation* 25 (7–8): 381–411. https://doi.org/10.1080/13803611.2020.1862677.
Manea, Roxana Elena, ed. 2021. *School Feeding Programs, Education and Food Security in Rural Malawi*. Updated edition. CIES Research Paper ; 63. Geneva: Graduate Institute of International and Development Studies, Centre for International Environmental Studies.
McEwan, Patrick J. 2013. "The Impact of Chile's School Feeding Program on Education Outcomes." *Economics of Education Review* 32 (February): 122–39. https://doi.org/10.1016/j.econedurev.2012.08.006.
Metwally, A. M., Marwa M. El-Sonbaty, L. A. El Etreby, E. M. Salah El-Din, N. Abdel Hamid, H. A. Hussien, A. M. Hassanin, and Z. M. Monir. 2020. "Impact of National Egyptian School Feeding Program on Growth, Development, and School Achievement of School Children." *World Journal of Pediatrics* 16 (4): 393–400. https://doi.org/10.1007/s12519-020-00342-8.
Mohammed, Bekri, Tefera Belachew, Shemsu Kedir, and Kalkidan Hassen Abate. 2023. "Effect of School Feeding programme on Academic Performance of Primary School Adolescents: A Prospective Cohort Study." *Clinical Nutrition ESPEN* 56 (August): 187–92. https://doi.org/10.1016/j.clnesp.2023.05.017.
Mostert, Cyprian M. 2021. "The Impact of the School Feeding Program on the Education and Health Outcomes of South African Children." *Children and Youth Services Review* 126 (July): 106029. https://doi.org/10.1016/j.childyouth.2021.106029.
Nikiema, Pouirkèta Rita. 2019. "The Impact of School Feeding Programs on Educational Outcomes: Evidence from Burkina Faso." *Journal of African Economies* 28 (3): 323–41. https://doi.org/10.1093/jae/ejy026.
Omwami, Edith Mukudi, Charlotte Neumann, and Nimrod O. Bwibo. 2011. "Effects of a School Feeding Intervention on School Attendance Rates among Elementary Schoolchildren in Rural Kenya." *Nutrition (Burbank, Los Angeles County, Calif.)* 27 (2): 188–93. https://doi.org/10.1016/j.nut.2010.01.009.
Snilstveit, Birte, Jennifer Stevenson, Daniel Philips, Martina Vojtkova, Emma Gallagher, Tanja Schmidt, Hannah Jobse, Maisie Geelen, Maria Grazia Pastorello, and et al. 2015. "Interventions for Improving Learning Outcomes and Access to Education in Low- and Middle Income Countries." 3ie Systematic Review 24. London: International Initiative for Impact Evaluation (3ie).
StataCorp. 2019. "Stata Meta-Analysis Reference Manual: Release 16."

https://www.stata.com/manuals/meta.pdf.
Wall, Caitlin, Terezie Tolar-Peterson, Nicole Reeder, Marina Roberts, Abby Reynolds, and Gina Rico Mendez. 2022. “The Impact of School Meal Programs on Educational Outcomes in African Schoolchildren: A Systematic Review.” *International Journal of Environmental Research and Public Health* 19 (6): 3666. https://doi.org/10.3390/ijerph19063666.
Wang, Dongqing, Sachin Shinde, Tara Young, and Wafaie W. Fawzi. 2021. “Impacts of School Feeding on Educational and Health Outcomes of School-Age Children and Adolescents in Low- and Middle-Income Countries: A Systematic Review and Meta-Analysis.” *Journal of Global Health* 11: 04051. https://doi.org/10.7189/jogh.11.04051.
Yussif, Mustapha Titi, Lenin Vong, and Karen Pilkington. 2020. “The Impact of School Feeding Programs in Reducing Iron Deficiency Anaemia among Primary School Children in Developing Countries: A Systematic Review and Meta-Analysis of Randomized Controlled Trials.” *Journal of Human Nutrition* 4 (1). https://scholars.direct/Articles/human-nutrition/jhn-4-014.php?jid=human-nutrition.
Zheng, Xiaodong, Jingru Ren, Dian Chen, and Xiangming Fang. 2023. “School Feeding and Children’s Noncognitive Skills: Evidence from the Nutrition Improvement Program in Rural China.” *Applied Economics* 55 (55): 6459–78. https://doi.org/10.1080/00036846.2022.2156472.
Zhou, Yanran, Jingru Ren, and Xiaodong Zheng. 2024. “Feeding for a Brighter Future: The Long-Term labour Market Consequences of School Meals in Rural China.” *Economics & Human Biology* 52 (January): 101335. https://doi.org/10.1016/j.ehb.2023.101335.