

# The scientific case for deworming children

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**\* Any views expressed in this opinion piece are those of the author and not of Thomson Reuters Foundation.**

# It would be tragic to deny children chance at healthier and more productive life for pennies per dose of deworming treatment

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The last few days have seen an outpouring of news stories relating to “worm wars”, the policy debate over whether governments should provide mass treatment for intestinal worm infections in endemic areas. This was sparked when a **re-analysis**

**(<http://ije.oxfordjournals.org/content/early/2015/07/21/ije.dyv128.abstract>)**

of a 2004 study (which found a strong link between deworming and school attendance) was published last week in the International Journal of Epidemiology. An issue that normally fights for attention sparked a media frenzy, and a robust discussion among scholars and pundits on social media.

While scrutiny is central to good science, this particular re-analysis and the ensuing media coverage, are rife with factual errors and misinterpretations. A key policy question is whether deworming increases school attendance (and improves other life outcomes), and if so, whether distributing deworming pills through schools is the most cost-effective way of doing so. As authors of the original **2004 Econometrica paper**

**([http://onlinelibrary.wiley.com/doi/10.1111/j.1468-](http://onlinelibrary.wiley.com/doi/10.1111/j.1468-0262.2004.00481.x/abstract)**

**0262.2004.00481.x/abstract**) that was re-analyzed, we’d like to clear up flaws in the re-analysis of our work.

The main findings of our 2004 study in Kenya were simple: (1) deworming reduces worm infections in both treated individuals and untreated individuals living nearby, (2) deworming improves school attendance for treated and nearby untreated individuals.

The re-analysis team used alternate methods to analyze our dataset. Such a practice is common in scientific discourse, changing assumptions of the original work to see if the results still hold. However, in this case, the re-analysis authors made four key analytical errors (specifically, in weighting observations, defining treatment, failing to pool the data, and ignoring spillovers). **We show** (<http://ije.oxfordjournals.org/content/early/2015/07/21/ije.dyv129.full>) that these analytical choices **are not statistically justified** ([http://emiguel.econ.berkeley.edu/assets/miguel\\_research/63/IJE-Commentary\\_Appendix\\_2015-05-15-CLEAN.pdf](http://emiguel.econ.berkeley.edu/assets/miguel_research/63/IJE-Commentary_Appendix_2015-05-15-CLEAN.pdf)), and it is only when Davey et al. simultaneously make at least two of these errors that deworming impacts on schooling no longer hold. The global research community has examined these statistical issues in detail (for instance, **Chris Blattman** (<http://chrisblattman.com/2015/07/23/dear-journalists-and-policymakers-what-you-need-to-know-about-the-worm-wars/>), **Berk Ozler** (<http://blogs.worldbank.org/impacetevaluations/worm-wars-review-reanalysis-miguel-and-kremer-s-deworming-study>), and **Alexander Berger** (<http://blog.givewell.org/2015/07/24/new-deworming-reanalyses-and-cochrane-review/>)), and largely confirmed the original results.

Many see our 2004 paper as the only evidence linking deworming to education, but there is actually a rapidly growing body of **related evidence** (<http://wber.oxfordjournals.org/content/early/2015/06/03/wber.lhv008.abstr>). Two recent randomized studies by scholars at the **World Bank** (<http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2014/10/>) and **Harvard University** ([http://scholar.harvard.edu/files/kcroke/files/ug\\_lr\\_deworming\\_071714.pdf](http://scholar.harvard.edu/files/kcroke/files/ug_lr_deworming_071714.pdf)) find that children who benefitted from deworming treatments showed cognitive improvements and had higher test scores 7 to 10 years later. **Our own extension** ([http://emiguel.econ.berkeley.edu/assets/miguel\\_research/64/Worms-at-Work\\_2015-07-23.pdf](http://emiguel.econ.berkeley.edu/assets/miguel_research/64/Worms-at-Work_2015-07-23.pdf)) follows up with children involved in the original

deworming experiment ten years later, and finds that Kenyan women who received additional deworming as girls were 25% more likely to have attended secondary school, and treated men earned more as adults.

Economic historians have **argued** (<http://qje.oxfordjournals.org/content/122/1/73.short>) that mass deworming was instrumental to improving health, education and living standards in the U.S. South during the 20<sup>th</sup> century. Multiple organizations, including the World Health Organization, have carefully reviewed the accumulating evidence on deworming, and conclude that mass drug administration is a highly cost-effective policy. With intestinal worm infections widespread throughout Africa, Asia and Latin America, it would be tragic to deny children a similar chance at a healthier and more productive life, for pennies per dose of deworming treatment.

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