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Econometrica, Vol. 72, No. 1 (January, 2004), 159–217

WORMS: IDENTIFYING IMPACTS ON EDUCATION AND HEALTH IN THE PRESENCE OF TREATMENT EXTERNALITIES

BY EDWARD MIGUEL AND MICHAEL KREMER[1]

Intestinal helminths—including hookworm, roundworm, whipworm, and schistosomiasis—infect more than one-quarter of the world's population. Studies in which medical treatment is randomized at the individual level potentially doubly underestimate the benefits of treatment, missing externality benefits to the comparison group from reduced disease transmission, and therefore also underestimating benefits for the treatment group. We evaluate a Kenyan project in which school-based mass treatment with deworming drugs was randomly phased into schools, rather than to individuals, allowing estimation of overall program effects. The program reduced school absenteeism in treatment schools by one-quarter, and was far cheaper than alternative ways of boosting school participation. Deworming substantially improved health and school participation among untreated children in both treatment schools and neighboring schools, and these externalities are large enough to justify fully subsidizing treatment. Yet we do not find evidence that deworming improved academic test scores.

KEYWORDS: Health, education, Africa, externalities, randomized evaluation, worms.

1. INTRODUCTION

HOOKWORM, ROUNDWORM, WHIPWORM, and schistosomiasis infect one in four people worldwide. They are particularly prevalent among school-age children in developing countries. We examine the impact of a program in which seventy-five rural Kenyan primary schools were phased into deworming treatment in a randomized order. We find that the program reduced school absenteeism by at least one-quarter, with particularly large participation gains among the youngest children, making deworming a highly effective way to boost school participation among young children. We then identify cross-school externalities—the impact of deworming for pupils in schools located near treatment schools—using exogenous variation in the local density of treatment school pupils generated by the school-level randomization, and find that deworming reduces worm burdens and increases school participation among

[1]The authors thank ICS Africa, the Kenya Ministry of Health Division of Vector Borne Diseases, Donald Bundy, and Paul Glewwe for their cooperation in all stages of the project, and would especially like to acknowledge the contributions of Elizabeth Bondy, Lulwa Bonaya, Pascaline Dupas, Simon Brooker, Alfred Luoba, Sylvie Moulin, Robert Namunyu, Polycarp Wawa, and the PSDP field staff and data group, without whom the project would not have been possible. Gratitude is also extended to the teachers and school children of Busia for participating in the study. George Akerlof, Harold Alderman, Timothy Besley, Peter Hotez, Caroline Hoxby, Lawrence Katz, Doug Miller, Chris Udry, and the editor and four anonymous referees have provided valuable comments. Melissa Gonzalez-Brenes, Andrew Francis, Bryan Graham, Tina Green, Jessica Leino, Emily Oster, Anjali Oza, and Jon Robinson have provided excellent research assistance. The evaluation was sponsored by the World Bank and the Partnership for Child Development, but all viewpoints, as well as any errors, are our own.

159

Worms: Identifying Impacts on Health and Education in the Presence of Treatment Externalities

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January 01, 2004