Graduate Research Assistant to Conduct Statistical Research on the Impact of Non-Occupational Pesticide Exposure on Academic Performance

Department of Agricultural and Resource Economics, University of Connecticut

TITLE: Graduate Research Assistant

SPECIALIZATION: Applied Economics; Environmental and Health Economics; or closely related field

The University of Connecticut's Department of Agricultural and Resource Economics invites applications for a two-year graduate research assistant position open to Master and Ph.D. students enrolled at the University of Connecticut. This position is funded through UConn's Research Excellence Program as part of the project "The Impact of Non-Occupational Pesticide Exposure on the Development and Performance of Children and Teenagers." The project summary is provided on the next page.

DUTIES AND QUALIFICATIONS: The primary responsibilities will involve collaboration with the interdisciplinary research team at the University of Connecticut (Drs. Steinbach, Brugge and Loken) to evaluate the impact of non-occupational pesticide exposure on the academic performance of children and teenagers. The graduate research assistant will work under the supervision of Dr. Steinbach. The project will relate field-level pesticide application data to a large sample of academic test results (more than 171 million test results) at a small geographical scale (school level) using panel data regression models. The position requires basic knowledge of ArcGIS or similar software packages and good command of a statistical programming language such as STATA or R. The successful candidate should demonstrate expertise in collaborative research, the ability to publish, and possess excellent verbal and written communication skills.

EFFECTIVE START DATE: This position is available starting August 23, 2020; however, the start date is negotiable.

SALARY: Salary is commensurate with experience and qualifications.

APPLICATION PROCESS: To apply, please submit your application package to Dr. Steinbach sandro.steinbach@uconn.edu and attach the following: (1) A **cover letter** addressing your qualifications; (2) **curriculum vitae**; (3) a **writing sample**, (4) **graduate transcript** (unofficial version acceptable for application); and (5) one reference letter in your support. Please contact Dr. Steinbach for inquiries about the position.

Assessment of candidates begins on July 15, 2020; and continues until the position is filled. Applications will be accepted through August 1, 2020.

PROJECT SUMMARY

Agriculture is the fundamental source of food supply and the primary employer in rural areas. In the last century, a multitude of profound technological advances radically transformed agricultural production processes. Among others, the green revolution accelerated the adoption of high-yielding cereal varieties, modern irrigation and cultivation systems, and agricultural chemicals, enabling humans to benefit from before unprecedented productivity increases. At the same time, the extensive use of modern pesticides raised concerns about potentially harmful side effects for the environment and human health. Numerous academic studies documented adverse reactions for a wide range of organisms and ecosystem services. Despite this extensive literature, the consequences of non-occupational pesticide exposure for human well-being remain poorly understood, and the existing scientific evidence is mostly equivocal. The lack of decisive evidence is mainly due to moral reasons which render randomized controlled studies with human subjects infeasible. In this light, data-driven statistical approaches offer a viable alternative that allow for complementary insight as large samples provide a compelling opportunity to control for confounders. We propose to investigate the association between pesticide exposure and the development and academic performance of children and teenagers using the information for a large sample of students (more than 171 million test results) at a small geographical scale (school level) for the period from 2003 to 2013. We concentrate our research efforts on the agriculturally dominated San Joaquin Valley in California for which we have access to high-resolution pesticide application data. We will build measures of non-occupational pesticide exposure at the school-catchment zone level using spatial analysis methods and match this data to student-level academic performance data. To account for confounding factors, we will construct a rich dataset on covariates and use panel data regression methods to control for unobserved characteristics at the school level over time. Among others, our empirical identification strategy will account for exposure to air and water pollution and other individual factors. This research will broaden the understanding of the association between non-occupational pesticide exposure and the development and academic performance of children and teenagers, which is a relevant public health concern in the United States.