
BIOGRAPHICAL SKETCH

NAME: Michael Geruso

eRA COMMONS USER NAME: michael.geruso

POSITION TITLE: Assistant Professor, Department of Economics

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE	Completion Date MM/YYYY	FIELD OF STUDY
Virginia Tech, Blacksburg VA	BS	05/2003	Mechanical Engineering
Virginia Tech, Blacksburg VA	BA	05/2003	Political Science
Virginia Tech, Blacksburg VA	BA	05/2003	Philosophy
Princeton University, Princeton, NJ	PhD	06/20012	Economics
Harvard University, Cambridge, MA	Postdoc	08/2012-12/2013	Health Economics

A. Personal Statement

As a health economist and economic demographer, I conduct empirical research that spans several PRC focus areas. These include Family Demography and Intergenerational Relationships, Population Health, and Reproductive Health. One strand of my research analyzes barriers to the efficient functioning of US healthcare markets, and the impacts these barriers have on healthcare disparities. The second strand of my research examines the determinants of child health outcomes in the developing world, with a particular focus on the role of poor sanitation and other environmental hazards. This developing-country work includes examination of how mothers' exposure to environmental hazards during the in-utero period can affect child health after birth.

In the next five years, I intend to continue working in both strands. For my work in US healthcare, I have research in progress examining the underlying incentive problems that lead health insurers create barriers to care for the chronically ill. In my continuing work on child health in the developing world, I am particularly excited about a new project I've begun examining how exposure to extreme weather and airborne pollutants affect child health and survival. There is good evidence on the impacts of extreme temperatures and airborne pollutants on health in the rich world, but we know very little to date about whether and to what extent the adverse health effects of these environmental factors differ for populations in poor countries, which have limited access to mitigating technologies such as air conditioning. I have planned several sub-projects within this research agenda that will cut across the areas of economic demography, reproductive health, and population health. With my PRC collaborators, I will analyze the effects of heat, humidity, ozone, and particulate matter pollution on infant and child physical health and outcomes like child cognitive development. We also have the data fidelity to examine how child health outcomes respond when the *mother* was exposed to these environmental hazards during the in-utero period.

The UT PRC has been instrumental in helping me to launch the climate and pollution project. The PRC has provided pilot funds to hire research assistants so I may begin the task of harmonizing data from 116 distinct nationally representative developing country surveys. The next step in the coming year will involve merging these geocoded developing country datasets to climate and pollution variables that correspond in place and time to the survey respondents. Constructing this dataset is the first critical step in this research agenda, and it involves start up costs that would be insurmountable for me without financial and technical support from the PRC. Assembling this type of merged global dataset on climate and health has never been done before, and I expect that the creation of the dataset in itself will constitute a major contribution to science. Technical support from the PRC's Science and Technical Core has been key in this effort, as data processing and storage immediately became an issue of importance given the sheer size of the databases involved in this project. As the project ramps up and builds several datasets in the terabyte range, this support will continue to be crucial.

B. Positions and Honors.**Positions and Employment**

2014-present National Bureau of Economic Research Faculty Research Fellow

- 2012-present Assistant Professor of Economics, University of Texas at Austin with courtesy appointments in the Population Research Center and The LBJ School of Public Affairs
- 2012-2014 Robert Wood Johnson Scholar in Health Policy Research, Harvard University

Other Experience and Professional Memberships

Ongoing: Reviewer for American Economic Journal: Applied Economics, American Economic Journal: Economic Policy, American Economic Review, American Journal of Health Economics, Demography, Econometrica, Economics and Human Biology, Economic Inquiry, Health Economics, International Journal of Health Economics and Management, Journal of Health Economics, Journal of Human Resources, Journal of Labor Economics, Journal of Policy Analysis and Management, Journal of Public Economics, Quarterly Journal of Economics, RAND Journal of Economics, Journal of the Royal Statistical Society, Social Science and Medicine

- 2015-present Chair, IRB of Research Institute for Compassionate Economics (r.i.c.e)
- 2011-present Board Member, Research Institute for Compassionate Economics (r.i.c.e)
- 2015-2016 Executive Committee, Economics Department, UT
- 2015-2016 Governance Committee, Population Research Center, UT
- 2010-present Member, American Economics Association
- 2011-present Member, American Society of Health Economists

Honors / Pilot Awards

- 2016 Pilot Grant, UT Population Research Center. "Air Pollution and Child Health Across the Developing World"
- 2012 Pilot Grant, UT Population Research Center. "The Mental Health Impacts of Local Violence: Evidence from Mexico's Drug War"
- 2009, 2010 Woodrow Wilson Fellowship, Princeton University
- 2009 Towbes Prize for Outstanding Teaching, Princeton University
- 2006-2008 Graduate School Fellowship, Princeton University
- 2002 Harry S. Truman Scholarship, National

C. Contribution to Science

Neighborhood Sanitation and Infant Mortality

Ending open defecation in the developing world has gained significant attention in recent years. Improving sanitation by ending open defecation has become a target of governments, of NGOs, and of private foundations. Epidemiological evidence suggests clear pathways by which exposure to fecal pathogens introduced by neighbors could lead to acute net malnutrition and ultimately death, but the prior literature had provided very little empirical evidence linking poor sanitation to infant death. In joint work with Prof. Dean Spears, I have investigated the mortality externalities of poor sanitation. Using nationally representative microdata from India that allows us to observe the sanitation practices of *neighbors* as well as own household infant mortality, we estimate large infant mortality harms generated when neighbors defecate in the open. To put the finding in perspective: More than half of India's population of 1.2 billion do not use toilets or latrines, either of which can serve to safely dispose of waste. Our findings, which are the first to estimate this relationship, are informative of the external harm generated by the one billion people worldwide who practice open defecation today. Our findings have been featured in the popular press, such as the *New York Times* and *The Economist* magazine, and have already been accumulating academic citations, despite the working paper being in a pre-publication phase. The paper, Geruso and Spears (2015), is now R&R at a top general interest economics journal. In summary, this work has significantly contributed to the scientific understanding of the environmental factors affecting infant health and survival.

- Geruso, Michael, and Dean Spears. Neighborhood sanitation and infant mortality. No. w21184. National Bureau of Economic Research, 2015. (Revision Requested *at American Economic Journal: Applied Economics*)

The link between Sanitation and Child Anemia

Anemia is a widespread problem with serious health and economic consequences. Defined by low counts of red blood cells or low levels of hemoglobin in the bloodstream, anemia implies a reduced capacity for the blood to carry oxygen. Previous research has shown that in adults, it reduces productivity and is associated with higher maternal mortality and that in children, it impairs physical and cognitive development. Globally, more

than 40% of children have hemoglobin levels below the threshold for anemia. The previous literature has largely focused on the role of malaria or inadequate nutrition in causing anemia. My research with Prof. Diane Coffey is the first to propose and provide evidence for an innovative hypothesis: Poor sanitation (the unsafe disposal of human feces) also significantly contributes to anemia. We identify effects by exploiting rapid and differential improvement in sanitation across regions of Nepal between 2006 and 2011. Within regions over time, cohorts of children exposed to better community sanitation developed higher hemoglobin levels (i.e., lower rates of anemia). Our results highlight a previously undocumented externality of open defecation, and build on my prior work with Spears. The paper, which was funded by an NIH R03 grant, is now R&R at a top general interest economics journal (*The Economic Journal*). The importance of this paper is that it fundamentally shifts our scientific understanding of what causes anemia: It is not just the calories that one consumes. Anemia also depends crucially on the calories lost to the type of intestinal parasites and illnesses that are caused by exposure to poor sanitation.

- Coffey, Diane, and Michael Geruso. "Sanitation, Disease, and Anemia: Evidence From Nepal." (2015). (Revision submitted to *The Economic Journal*.)

The Importance of Insurer Competition in Ensuring Patient Access to High Quality Care

A central question in the debate over the future of healthcare in the US is whether to use private insurers to delivery publicly-funded health benefits. Proponents of privatization argue that it would reduce costs for taxpayers and consumers by encouraging competition among private insurers. Opponents of privatization argue that such a move would lead to large profits for insurance companies, while leaving the intended beneficiaries with worse access and lower quality care. We provide new evidence on this question by examining the impacts of private insurers in the existing Medicare program. We exploit a natural experiment to show that private Medicare insurers "pass through" only 44% of increased government subsidies in the form of lower patient premiums and only an additional 8% in the form of more generous health benefits. This implies that about 50 cents on the dollar ends up in the pocket of insurers and providers, as opposed to reaching the intended Medicare beneficiaries in terms of higher quality care. Importantly, we show that pass-through rates are as low as 13% in the least competitive markets and 74% in the most competitive. These results are important because they highlight the role of insurer competition in guaranteeing high quality of care and low prices for patients. While there has been much theoretical discussion of this point, the prior empirical evidence is remarkably limited. The issue is especially important in light of the increasing privatization of publicly funded health benefits in the US over the past 25 years. Our results emphasize the importance of strong competition in health insurance markets if patients are to be well-served by their insurers. The paper is R&R at the top journal in economics.

- Cabral, Marika, Michael Geruso, and Neale Mahoney. "Does privatized health insurance benefit patients or producers? Evidence from Medicare Advantage." No. w20470. National Bureau of Economic Research, 2014. (Revision Requested at the *American Economic Review*)

Link to Published Work in MyBibliography:

<https://www.ncbi.nlm.nih.gov/sites/myncbi/michael.geruso.1/bibliography/51180553/public/?sort=date&direction=descending>

D. Research Support

Ongoing Research Support

N/A

Completed Research Support

R03HD081209 (M. Geruso and D. Spears, PIs)
National Institute of Child Health and Human Development
Impacts of Sanitation on Child and Maternal Health

09/22/14-08/31/16

This project aimed to better understand how widespread inadequate sanitation in poor countries shapes human development, health outcomes, and nutritional status. Sanitation matters for "net nutrition": food intake net of calorie and nutrient loss to disease, such as diarrhea or parasites, which can be caused by unsafe disposal of feces. This research has so far resulted in one completed paper by Geruso and Coffey "Sanitation, Disease Externalities, and Anemia: Evidence From Nepal." This paper is the first to show that exposure poor sanitation generates anemia in children. Our results highlight a previously undocumented externality of open defecation, which is today practiced by over a billion people worldwide.

Role: Principal Investigator

Responsibilities: Analyzing data, managing the project, and publishing the findings.