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Comment

Robert J. Willis

This paper revisits the important and controversial paper of Adams et al. (2004)—denoted HWWA—which sought to uncover the causal direction of the correlation between health and economic status using longitudinal data from the Asset and Health Dynamics among the Oldest Old (AHEAD) cohort of the Health and Retirement Study (HRS). Their methodology and their finding that they could not reject the hypothesis that economic status has no causal effect on health, a test of Granger noncausality together with tests of invariance, stimulated much controversy. Indeed, an entire issue of the *Journal of Econometrics* was devoted to the HWWA paper and to a set of detailed comments on its methodology and findings by an exceptionally distinguished group of scholars from economics, epidemiology, philosophy, and statistics.

Much of the importance of the earlier paper stems from the importance of the basic questions it addresses. Do economic resources determine health?

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Does health determine economic success? Or are both health and wealth dependent on some third factor? In a country that devotes nearly a fifth of its gross national product (GNP) to health expenditures and has growing disparities in income and wealth, the answers to these questions obviously have enormous implications for health policy and economic policy. HWWA proposed a novel approach for testing the direction of causality. Their approach and results are important and controversial from a scientific point of view both because the literatures in public health and economics have long had opposite views about the direction of causality between health and economic status and because conventional econometric reasoning strongly suggests that it is exceedingly difficult to disentangle the many plausible sources of endogeneity underlying the health-wealth correlation in order to estimate credible causal effects in population data.

The current chapter—denoted SHMW—is billed as the first step of a longer project to address the methodological and substantive issues raised by the HWWA paper and its critics. SHMW have chosen in this chapter to employ the same methodology that HWWA used in order to test the hypothesis that economic status has no effect on health in a broader sample that includes younger people and more waves of the HRS.

Their argument for this strategy has two main elements. First, many of the doubts about the validity of the earlier finding of Granger noncausality of economic resources on health center on the idea that people over the age of seventy in the AHEAD sample are much less resource-constrained in terms of access to medical care than younger Americans because of Medicare. More generally, it may be noted that socioeconomic health differentials experience seem to expand until people reach age fifty to seventy and then become more compressed in very old age (Smith 2004). These considerations suggest that it should be harder to reject a Granger noncausality test in the expanded sample and that a failure to reject would yield a more convincing conclusion than HWWA.

The second reason for their strategy is that it is straightforward to test for Granger noncausality and invariance while it is very difficult to identify a structural model in which the causal impact of a particular policy change or economic event such as a change in the age of eligibility for Medicare or a negative wealth shock from the Great Recession. SHMW acknowledge that Granger causality is a purely statistical concept that fails to answer the kinds of causal questions that are of interest to scientists who seek to understand the mechanisms that link economic resources and health outcomes or to policymakers who are trying to find economic policy levers that can improve health. Still, finding that SES is not G-causal and that the relationship is invariant across SES and health histories of different length, covering samples of varying age would be informative. Indeed, such a finding would undermine the credibility of epidemiological research that assumes that inequality in SES is a major cause of health disparities, and it would

also call into question the value of policies to increase access to health care by expanding health insurance coverage.

In the course of discussing their strategy, SHMW provide an excellent extended discussion of the alternative meanings of causality, of alternative mechanisms that might underlie health-wealth correlations, and of the econometric issues that must be addressed before it is possible to test specific causal hypotheses or estimate the effect of a policy on health outcomes. This discussion will be useful to any researcher or consumer of research in this area. It should also serve as a warning that research on causal linkages between health and wealth needs to pass a high bar to be credible.

The empirical work presented in the current chapter provides an important intermediate step in the long-term project, but ultimately demonstrates that the original HWWA strategy is unlikely to achieve its aim of narrowing the search for structural models of the health-wealth connection that are relevant for policymakers by ruling out, for example, all possible models that involve causal impacts of economic variables on health outcomes. The chapter examines a very wide range of health outcomes in a series of samples carefully chosen to isolate if and when the HWWA findings supporting Granger noncausality of wealth and health break down as younger individuals and longer histories are considered. The results indicate that tests of noncausality are rejected fairly often and that it is not easy to find an informative pattern in the samples or outcomes for which rejection or nonrejection occur.

To me, the broad conclusion to be drawn from this chapter is, unsurprisingly, that it is quite likely that economic resources matter for some but not all health outcomes. This conclusion is supported by recent research on findings from natural experiments on the health effects of mass layoffs (Sullivan and von Wachter 2009) and access to health insurance (Finkelstein, et al. 2011). Moreover, as SHMW suggest, the new health care legislation in combination with the large shocks to employment and wealth generated by the Great Recession will generate more evidence from natural experiments whose outcomes will be recorded in the HRS and administrative data. I would hope that future researchers, including SHMW, will make use of this exogenous variation—purchased at such high cost!—to go beyond broad causality tests and investigate more narrowly focused questions about the mechanisms that connect specific health outcomes to specific changes in prices, income, and wealth. Ultimately, both science and policy require more specific information about what connects means to ends.

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