

HOMAGE TO HALBERT WHITE

By

Peter C. B. Phillips

COWLES FOUNDATION PAPER NO. 1438



**COWLES FOUNDATION FOR RESEARCH IN ECONOMICS
YALE UNIVERSITY**

Box 208281

New Haven, Connecticut 06520-8281

2014

<http://cowles.econ.yale.edu/>

Homage to Halbert White¹

Halbert White was a prominent figure on the world stage of econometrics for over three decades. During this time he became a cherished friend and colleague to his peers, a standard bearer of econometric theory and its practical relevance for the wider profession of economists, a bridge builder of methodology to disciplines outside of economics, and an inspiring figure of stunning success for younger generations of econometrician.

Universally known to us as Hal, he was instantly recognizable in the 1980s by the leather cowboy hat that he sported, making him a singleton that stood out among large conference crowds of economists. Up close, his bright smiling eyes and engaging demeanor attracted people like spring sunshine after a winter of cold academic detachment. As a companion he entertained us with amusing tales, sometimes delightfully mischievous and irreverent, endearing us all to him. He loved a good pinot noir, including some of New Zealand's finest, and the booklet of vintages he carried in his pocket book was a well-thumbed resource at the dinner table.

Hal was a gentle, caring man. He looked out for his students, supported his colleagues, and proved theorems for all of them. In addition to his vast contributions to econometric theory, he triumphed the practical side of our subject, showcasing its enormous uses in the resolution of society's many complex problems through his brilliantly successful international consulting firm Bates-White.

He started academic life after MIT graduate school as a labor and urban economist at the University of Rochester. But quickly showed his talents as an econometrician and within a few years he had established himself as one of the world's leading econometric theorists. The final phase of Hal's transition to econometrics was consummated when, as Hal described it, an *Econometrica* referee recommended publication of one of his papers on the condition that the labor economics application be removed. In 1984, he became one of the founding CoEditors of *Econometric Theory* and helped guide the course of the journal during its fledgling years of the 1980s.

Hal's primary legacy is his research—a record of foundational gemstones that have changed the face of empirical research. He was the unquestioned champion of misspecification econometrics and this remains the leading thematic in all of his pioneering work. The design of robust inferential procedures became a distinctive torch of econometric methodology. It burned brightly during the 1980s and has characterized econometric inference ever since. Hal's 1980 paper in *Econometrica*

¹Adapted from the laudation of Halbert White given by the author in the JFEC Invited Lecture "Pitfalls and Possibilities in Predictive Regression" delivered at the SoFiE Conference, June 12, 2013 in Singapore.

on the construction of heterogeneity-robust standard errors opened up that field to econometricians. Its massive impact on practice placed it in a class of its own, breaking records as the most cited paper published by *Econometrica*. Empiricists throughout the social sciences now know him through software and textbook via the eponymous moniker White standard error and its companion the White information matrix test.

A secondary legacy to the profession is Hal's contribution to pedagogy. Successive generations of students at San Diego proudly carry forward the Hal White sigil of econometrics—rigorous asymptotic theory and its practical implementation—in their own work and that of their students and colleagues. Hal's 1984 book *Asymptotic Theory for Econometricians* made a typically timely appearance. In the 1960s and 70s, there had been growing concern over standards of rigor in asymptotic arguments in econometrics—in contrast to the earlier work by the Cowles Commission during the 1940s. These concerns were articulated in a gracious letter to the Editor of the *International Economic Review* by Edmond Malinvaud in 1971, cautioning the profession over questionable arguments that were appearing in the econometric literature. Hal's book justly pointed econometricians to the rigorous literature in probability and mathematical statistics, showing how this work could be usefully transported into econometrics. The book quickly became a bible in econometrics courses and saw the dawn of the asymptotically literate econometrician. Of course, Hal's book was not itself without error and many of the results reported in the book were unproved. But, as we used to joke, it was natural for a book on asymptotics to leave the important stuff to the end—here the jewel of a chapter that presented the first general results on heteroskedasticity and autocorrelation consistent covariance matrix estimation. This work, as we all know, became the foundation for subsequent empirical practice and created a tsunami of theoretical research that still continues.

My contact with Hal began in 1980 at conferences. Two years later he visited me at Yale. He brought with him a gust of fresh air showing how excitingly general econometrics could be with the pioneering work of McLeish on strong laws and central limit theory under weak dependence. That gust soon turned into a gale of asymptotics that completely overtook the profession, creating a new arena of generality for econometrics. That arena is still with us dominating the econometric skyline like a methodological emporium, massively impacting empirical practice and changing the face of the subject forever. Hal certainly did not accomplish this on his own. But he was one of the primary drivers of this fundamental change.

Hal White's contributions add up to a wonderful legacy to the subject and to all of us who work within it. Sadly, he is no longer with us and is dearly missed by those of us who knew him well. Our solace is that Hal will be forever remembered as the morning star who helped to guide the profession into the modern era of generality that we all now enjoy.

PETER C. B. PHILLIPS
June 17, 2013