

## *A Guide to Econometrics, 5th ed*

By Peter Kennedy. 2003.  
Cambridge, MA: The MIT Press.  
Pp. 623. \$75.00 cloth, \$37.95  
paper.



The fact that there is a new fifth edition of Peter Kennedy's *A Guide to Econometrics* is eloquent testimony to the popularity of the preceding editions. The book is not a textbook for an econometric course but a nonmathematical complement to a standard econometrics textbook at any level. Its aim is to provide an overview of econometric topics and to give an intuitive interpretation of econometric concepts and methods without the usual clutter of technical detail. Business economists will appreciate this approach. The virtue of the newest edition lies not only in the additions and extensions introduced but also in the updating of the huge stock of references cited throughout the book.

As in the earlier editions, the author follows a uniform structure of the chapters. Each chapter consists of the main text pertaining to the subject of the chapter, followed by "general notes" and concluded by "technical notes." Mathematical exposition is reserved to the concluding part, and even there it is used very sparingly and in an uncomplicated way.

The chapters cover virtually all topics discussed in standard econometric courses, whether undergraduate or graduate. In general, the coverage is comprehensive, although dif-

ferent readers might wish for more attention to their favorite topics. My wish list includes more coverage of some of the most exciting and relatively recent innovations in econometrics now finding their way into business and finance, such as Robert Engle's ARCH model and Halbert White's heteroskedasticity-consistent standard errors. But these are unavoidable aspects of a comprehensive exposition of any subject.

Apart from the uniqueness of the style of Kennedy's text, the book is also unique in a way that distinguishes it from other econometric texts, namely that for anybody interested in the subject it is fun to read. The text is full of clever insights, witty comments and humorous citations. The author's excellent understanding of all things econometric is remarkable, and his command of the econometric literature is most impressive. Considering the amount of work that must have gone into writing this book, it is clear that for the author it was a labor of love. In his comments on each topic the author thinks of practically everything. Again and again, I thought of some omitted aspect of the topic under discussion only to find it mentioned in the next paragraph or on the next page. Furthermore, the models and methods discussed are presented in a simple and easily understandable way. Notable examples of this would include generalized method of moments, duration models, bootstrapping, and especially neural networks. Worth mentioning is the new chapter on panel data, and the business economist will appreciate the new chapter on "applied econometrics" with its most useful discussion of common mistakes.

With all these enthusiastic accolades, the obvious question has to do

with the possible existence of any weakness of the book. In this regard the only significant weakness, at least in my view, is the treatment of "time series econometrics." The author notes that the introduction of the time-series analysis approach to modeling dynamic economic relations in the 1980s has radically changed the way of dealing with time series observations in econometrics. The most effective acknowledgement of this fact—not yet known to the author at the time of writing this book—was the 2003 Nobel Prize award to the two architects of the "time series revolution," Robert Engle and Clive Granger. Nevertheless, the "time series econometrics" has weaknesses that are not mentioned by the author and should interest business economists.

One weakness of the time series approach in modern econometrics is methodological. The traditional and common approach to econometric problems of dealing with economic relationships usually starts with the regression model that applies regardless of the type of observations used for estimation and testing. The author himself states this very clearly by noting that "(m)ost econometric problems can be characterized as situations in which one (or more) of these five assumptions (of a classical regression model) is violated in a particular way...(The researcher) then turns ...to see whether the OLS estimator retains its desirable properties and if not what alternative estimator should be used" (pages 47-48). The violated assumption in the case of variables observed over time is presumably that of a finite variance. The standard methodology of econometric research would call for the determination of the detrimental consequences

concerning the properties of OLS estimators and for their remedy. In the parlance of time series analysts, inference using OLS is “invalid” or “spurious,” but the author makes no reference to the standard and precisely defined properties of consistency, efficiency, and normality in presenting time-series analysis. Certainly business students with an eye to using this material will notice the disconnect.

A more serious objection, for the business economist practitioner, to the unmodified adoption of time series analysis is that it pushes econometrics away from economics. For instance, it is hard to believe that all that a person trained in economics can say about the generation of GDP is that it is determined by a time trend and a stochastic disturbance, as the author does on page 334. A business economist who offers that explanation to management is sure to be viewed as lacking important insights. Similarly, confining one’s interest in economic variables to their common (cointegrated) movement through time without investigating why this happens is an abdication of professional responsibility. Finally, discovering the existence of more than one cointegrated relationship among economic variables without having a prior theoretical explanation for it goes against the grain of customary economic research. In the defense of the author, he is well in line with the current practice, but given the high standard of other insights and deliberations in the book one would expect more.

Still, the above criticism notwithstanding the book is excellent and a pleasure to read just for the fun of it. Business economists can use it for consultation on almost any econometric problem. Even the chapter on time series econometrics is the clearest exposition of common practices that I have seen. And quite apart from the

lucid style of exposition and the clarity of writing, the book is a treasure of references including an impressive 50-page long bibliography that alone makes it a worthwhile investment for practitioners and educators. All in all, for anybody interested in the subject the book is a gem in the field of econometric literature.

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### ***Inequality in America: What Role for Human Capital Policies?***

*By James J. Heckman and Alan B. Krueger. 2004. Cambridge, MA: MIT Press. Pp. 370. \$40.00 hardcover.*



From time to time, the economics deities gather on Mt. Olympus and battle. This battle, the third Alvin Hansen Symposium at Harvard, is a debate on the role of human capital policies in response to inequality. Nobel Laureate James Heckman and Pedro Carneiro (both of the University of Chicago) cast thunderbolts from the sky—radically revising human capital theory and advancing a strong, new interpretation of the empirical evidence. Alan Krueger (Bendheim Professor of Economics and Public Affairs at Princeton) offers a strongly argued alternative that yields remarkably different policy recommendations given substantial agreement about both theory and the relevant empirical evidence.

Krueger’s 75-page essay “Inequality: Too Much of a Good Thing” opens the book. He sets out the basic facts regarding changes in the distribution of income and earnings and discusses various perspectives on the nature, consequences, and causes of inequality. He evaluates evidence on the returns to investments in human capital from preschool to college and proposes policies to reduce though not eliminate inequality. His essay is admirably broad and well worth the time of anyone who wishes to become acquainted with contemporary research on inequality and human capital development. However, the 163-page treatise by Carneiro and Heckman that follows is the heart of this volume. Their tour de force opens the debate, attacking much of the conventional wisdom regarding human capital theory, research, and policy.

Carneiro and Heckman argue first that because “learning begets learning” investments in human capital are more productive both earlier in the lifecycle and for higher-ability individuals. By extension, returns to schooling are higher for children from higher income, more educated families. Second, human capital theory and policy must recognize the dynamic interactions among families, schools, and businesses in the development of human capital over the lifecycle. They state (313), “Schools work with what families give them. Job training programs work with what schools and families give them.” Third, non-cognitive skills (such as motivation, leadership, honesty, and social skills) are at least as important as the cognitive skills that are most often the sole focus of human capital theory, research, and policy. Both types of skills are forms of human capital and not rivals of human capital, as models employed to analyze policy frequently assume.

Carneiro and Heckman begin by reviewing the data on inequality, but they focus more attention on inequality in schooling and skills, including the early origins of these inequalities. They also review evidence for the effectiveness of policies and programs across the age span. They conclude (90) that “at current levels of spending in the American economy...the return to investment in the young is apparently quite high; the return to investment in the old and less able is quite low.” Their graphics portray the return to human capital investments as falling below an acceptable rate just after the preschool years. In depth, their views have more nuances. Cognitive ability is much less malleable beyond the early years, while non-cognitive abilities can be significantly altered well into the adolescent years.

Reviewing specific programs, Carneiro and Heckman find that preschool education is highly effective, although with more impact on non-cognitive than cognitive abilities. Schools are much less productive, and returns are low to increased investments in K-12 education in the form of higher salaries, smaller classes, and so forth. They suggest that structural changes that increase school choice and competition should have higher returns, but are careful to note that returns to increased investment in schools are limited by what families contribute to the production process. They also conclude that added investments in job training and higher education have low rates of return, particularly for lower ability adolescents and adults. Tax and immigration policies are deemed unlikely to reduce inequality in skills much.

Carneiro and Heckman note some exceptions to their general thesis. They find short-term credit constraints limit college attendance for

up to eight percent of the population. Financial programs targeting these families could pay off. School-based interventions with adolescents still enrolled (but not dropouts) have substantial impacts, particularly on non-cognitive skills. Private job training has a relatively high rate of return but does not reduce (and may increase) inequality. Public policies providing training in the classroom have high rates of return, though other public job training programs do not.

The exceptions are taken to prove the rule, because they are relevant to so few people and have such small impacts on inequality. Carneiro and Heckman conclude (123): “the ability that is decisive in producing schooling differentials is shaped early in life. If we are to substantially eliminate ethnic and income differentials in schooling, we must start early.” Thus, a “serious reformulation of human capital policy is needed.” Yet, even with the benefit of a response and rejoinder, the reader is left with only hints as to what this might entail beyond rejection of most current policies and movement toward choice, competition, and local incentives in schools. Most intriguing are their statements that emphasize early family policy (135): “Good families promote cognitive, social, and behavioral skills. Bad families do not. The relevant policy issue is to determine what interventions in bad families are successful.”

Krueger presents a stark contrast despite seven major points of agreement, including the importance of non-cognitive skills (business economists will welcome the inclusion of such skills in human capital studies) and high returns to preschool programs. He finds that rates of return to human capital investments at the margin are more or less equal (at around ten percent) and tend to be the same or higher for children from

low income families, so that broad increases in public investments in human capital are warranted. Krueger’s conclusions differ due to different interpretations of the same evidence, different assessments of the size of effects on which there is qualitative agreement, and a lower estimate of the opportunity cost of funds for public investments.

Krueger calls for increased public investments in human capital over the life span targeted on low-income individuals: full funding of Head Start and Early Head Start, full funding of Job Corps, a longer school year (offering vouchers for summer programs), and class size reductions. He also recommends compulsory school attendance age be raised to 18, merit pay to raise teacher quality, increased funds for adult training under the Workforce Investment Act, and income maintenance allowances for trainees.

The details of policies are shown to matter greatly. Thus, Krueger can be faulted for recommending current programs such as Head Start and Early Head Start that fail to implement what is known about effective preschool education policy. Carneiro and Heckman can be faulted for a lack of detailed recommendations, and because evidence of large non-cognitive externalities (e.g., crime reductions) and diminishing marginal returns is too strong to conclude that social rates of return are lower for poor children.

Neither Krueger nor Carneiro and Heckman leave the reader entirely satisfied, a not surprising result given the importance and complexity of the subject. After reading this path-breaking book, the reader is much better prepared to assess both positions and arrive at independent conclusions. The emphasis on comparing marginal costs and benefits of these programs suggests that many new

policies may be best evaluated as substitutes rather than supplements to existing programs. This result might lead to greater consensus in policy recommendations, and this is an important result.

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