

Easing the tension: economic growth and our dwindling natural resources

Economic Growth and the Environment: An Introduction to the Theory. By Clas Eriksson. Oxford, U.K.: Oxford University Press, 2013, 264 pp., \$75.00 hardcover, \$35.00 paperback.

Promoting economic growth while mitigating negative environmental externalities is often seen as a zero-sum game. Much ink has been spilled praising the merits of one course of action while downplaying the impact or importance of the other. As is so often the case, the truth probably lies somewhere in the middle—a piece of ground on which Clas Eriksson's *Economic Growth and the Environment* firmly plants itself.

The book offers a well-rounded introduction to the study of growth constrained by pollution and resource scarcity. Although written at the advanced undergraduate level, the text is sufficiently clear and concise to allow nontechnical readers with a firm grasp of calculus to follow the formulae and concepts introduced. That said, there is still much here for those who have studied advanced economics, as I certainly found the material in the second half of the book enlightening.

Split into three parts, the book examines the central question of whether environmentally sustainable economic growth is feasible. Each successive part builds on the concepts introduced in the preceding one, aiming to construct models that describe economic growth with increasingly complex interactions among different factors of production. Part I provides the basic tools necessary for this type of analysis, whereas parts II and III add the complicating factors of, respectively, natural resource scarcity and pollution. This layout resembles that of a textbook. Readers hazy on the technical details of their



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undergraduate economics courses can get up to speed quickly, while those taking such courses concurrently with reading the book can appreciate the nuance introduced by various model applications.

Part I introduces the tools of economic growth theory, and its chapters serve equally well as a primer and a refresher. The text relies mainly on the Solow growth model, which is introduced alongside Cobb-Douglas and constant-elasticity-of-substitution functions. Model inputs are defined, and the strengths and weaknesses of each model are discussed. Chapter 4 introduces technological change and its implications for the models. The author draws a distinction between endogenous and directed technological change. This distinction is important because of the growing attention paid to pollution's negative impact on the environment and the correspondingly increasing directed effort to mitigate that impact through research and technological innovation.

Several simplifying assumptions are held throughout, such as that postulating constant returns to scale—the notion that multiplying inputs yields a corresponding multiplication of output. Eriksson explains these assumptions and their justification in the introduction. None are particularly unique, and, given the target audience, it is unlikely that readers versed in the economics literature would take issue with any of them. A deeper dive that makes fewer assumptions would have made the text ill-suited to teaching a course at the advanced undergraduate level.

Modeling the impact of limited natural resources on economic growth is the crux of part II. Chapter 5 folds land as a production factor into the model, while chapter 6 incorporates exhaustible resources. Chapter 6 is the longest in the book and, given that it tackles the most complex inputs, justifiably so. The author introduces the energy constraint to the model, examining the implications of both renewable and nonrenewable resources. A short, interesting section on the resource curse, or “Dutch disease,” is also offered. The moral of Eriksson's story is that robust institutional checks on corruption are particularly important in mitigating the growth-suppressing effects of the curse.

The part of the book I suspect many will find most compelling is the last. The final three chapters are devoted to reconciling the competing goals of, on the one hand, encouraging growth and, on the other, limiting pollution as a negative environmental externality. The tension between these two goals is what came to my mind when I first read the book's title, and Eriksson devotes enough space to shed light on the topic. I was especially pleased with the final chapter, which focuses on utility maximization. Rather than treating pollution as an absolute negative, the author carefully examines its relationship with consumption. He concludes that pollution is a price that must be paid at some level of economic growth, and the question is how society optimizes on that constraint.

As already noted, the text builds upon itself from page to page and from chapter to chapter, making learning about the interplay between economic growth and environmental sustainability straightforward and relatively simple. While this technique is by no means novel, I found it well implemented and worth highlighting. Although I was a little hazy on my undergraduate economics courses when I picked up the book, I never felt lost or overwhelmed by the concepts presented. I highly recommend this text as a valuable resource for readers interested in expanding their knowledge in this corner of the economics discipline.

Just as useful to the student reader are the references to further readings at the end of each chapter. These references could be particularly helpful to those less familiar with the development of economic growth theory,

and, in the early chapters of the book, Eriksson points to some stepping-stone papers in the field. He offers not just a list of references, but also a few words about the merits of each source. For those more interested in a list, a bibliography is, of course, provided.

One additional feature that would have helped me advance through the more technical parts of the text is an appendix with a quick reference guide. Such a resource could have included definitions of economic terms and variables, allowing readers to flip to it and refresh their memory. However, a firm understanding of these terms and variables is not too much to expect from the target audience, and I cannot critique the lack of a reference guide too strongly.

Eriksson consistently proves knowledgeable of the material he covers. Perhaps more importantly, he is adept at conveying it without excessive reliance on jargon. I came away with a much better understanding of the tensions between advancing economic growth and minimizing negative environmental externalities. It could very well be that one of these objectives is more important than the other and that the middle ground is overrated. Regardless, with the tools learned in this book, I will be better prepared to make an informed judgment the next time someone stakes a claim.