

BOOK REVIEWS

Worst-Case Economics: Extreme Events in Climate and Finance, by FRANJK ACKERMAN (Anthem Press, London (UK) and New York (USA), 2017) 187 pages, ISBN 1783087072 and 9781783087075, hardcover.

Frank Ackerman's "Can We Afford the Future?" published in 2009, created a great deal of interest. Its sub-title: "The Economics of a Warming World," with its positive assessment of the Stern Review as: "much less wrong than many of the analyses that preceded it," found widespread support. His latest book: "Worst-Case Economics" seems to have attracted less attention and support. The reason, I suspect, is that although reviewers and other readers will often strongly agree with parts of it they have had a struggle to deal with other chapters.

Ackerman begins his assessment with a brief but sound critique of neoclassical economics and then moves on to the need to go beyond the standard notion of *homo economicus*. However, writing about the 2007/2008 financial crisis and its aftermath, should one rely solely on references to Michael Lewis's: "The Big Short"? Would it not be sensible to refer to such works as: Carmen Reinhart and Kenneth Rogoff: "This Time is Different: Eight Centuries of Financial Folly," 2009, Princeton University Press; David Graeber: "Debt: The First 5,000 Years," 2011, Melville House; and other non-fictional accounts of relevant events influencing the US economy in particular from the early 1970s?

Then Ackerman offers as *a leading alternative* to *homo economicus* the field of behavioural economics "that emerged in the 1980s, beginning with the work of Daniel Kahneman and Amos Tversky," backed up with a footnote referring to the origins of behavioural economics as assessed by Richard Thaler. Ackerman seems to be unaware that neither Kahneman nor Tversky were economists; that Thaler took some time to realise that Adam Smith had covered much of his thinking and work in "The Theory of Moral Sentiments" 250 years ago (as he acknowledged in "Misbehaving"); or that a number of psychologists were heavily involved in economics in the 19th Century, of whom Henry Sidgwick is probably the most familiar name nowadays. Indeed neither Kahneman nor Thaler appear to have been aware of the psychological school of economics in the early years of the 20th Century—associated with Zenas Clark Dickinson, Wesley Clair Mitchell, and other US economists. Even George Katona, whose published works spanned the years 1940-1980, never gets a mention in any of Kahneman's work and only gets a brief mention in Thaler's two earliest books. Peter Earl will be setting the record somewhat straighter with: "Richard H. Thaler: A Nobel Prize for Behavioural Economics," in the October, 2018, issue of *Review of Political Economy*.

Rather like Herbert Simon's concept of "bounded rationality," discussion of large number issues and probability distributions, awareness of the frequency of use of some words and phrases, the incomplete information basis for trading, and the risks posed by inequality, are rather old hat, and must have been recognised as human frailties by observant people for many centuries. Yet Ackerman devotes five chapters of his book to these well-worn issues. A further two chapters are devoted to rather mundane comments on climate sensitivity. As his Chapter 8 is entitled "Ants and Traders" it is surprising that he makes no mention of the fascinating work which Nobel Prize winner Ilya Prigogine carried out on the behaviour of, and communication between, ants. Ackerman's Chapter 9 ends with the statement that inequality begets instability, which this reviewer would have no problem with—if it weren't for the fact that history warns us that equality imposed by political repression is liable to beget instability also.

Then in Chapter 10 Ackerman comes to climate tipping points, where he begins with the statement: "the most ominous climate extremes occur only in future projections. Or in disaster movies." He does look back to the Younger Dryas, but no further. He does not mention the Little

Ice Age and the impacts which several global solar minima—Oort, Wolff, Sporer, Maunder, Dalton, Glassberg—had on reducing near surface temperatures. This is slightly odd as much of his book is devoted to uncertainty, tipping points (but only in an upward direction as far as near surface temperatures are concerned?), and “known unknowns.” It is in the final chapters (12–17) that Ackerman makes his best points.

Ackerman sets out the case for questioning the value of seeking and carrying out quantitative estimates of problems and solutions, and of modelling policy options. Instead he sees grounds for seeking to understand risk and having to make choices without being able to calculate options with any precision. He rightly claims that decision making without hard numbers has often led to good outcomes in the past. Nevertheless, in his concluding chapter he does recognise that there can be a role for economists once decisions have been made about goals and targets, that role being to assist in the analysis of cost-effective strategies for achieving them.

In Chapter 15 he covers the precautionary principle on sensible grounds, recognising that pushed too far it would cause such alarm as to bring progress to a halt. Citing Kenneth Arrow and Leonid Hurwicz, Ackerman supports the focus on examining the most optimistic and the most pessimistic considered outcomes. He refers to the scenario work conducted by Shell, especially in the 1970s, and a jointly authored paper with Kevin Noone published in 2013 in a book on managing ocean environments. Having been a member of Shell’s scenario group 1974–1979 (when I was the Group’s first Chief Economist), and having written various published papers and book chapters on the subject, I hope I may be permitted to suggest that Ackerman’s reference, confined to optimistic and pessimistic “visions of the future,” is inadequate. Following George Shackle, the future is unknowable, but we did offer “subjective probabilities” or “hunches” for alternative scenarios, and paid particular attention to those which we believed carried with them “a high coefficient of seriousness” for the business—in the quaint Gallic English of Pierre Wack.

Ackerman concludes by asserting that the approaches needed to control financial and climate extremes are clear and the goals are complementary. This is not clear to this reviewer. Certainly policies which discourage speculative bubbles, and social welfare policies which discourage excessive debt, should be a requirement. The risks of climatic change induced by human activities (notably usage of fossil fuels) require sound precautionary policies and actions to reduce the risks, while recognising—which too few people seem prepared to admit—that there are uncertainties both in the possible scale of rising and falling future near surface temperatures. Scenarios developed to capture some of the future uncertainties of financial and climatic events are highly desirable. But it is not clear what the similarities are, and therefore how genuinely complementary.

Ackerman leaves reference to energy to his final chapter, and in barely a third of a page states that the risks of climate change “call for a reinvention of energy, transportation and industry—undoubtedly including, but not limited to, a price on carbon emissions.” He goes on to assert that many of the needed technologies are known (he does not mention that some have been around, under-exploited, for over 150 years), but a big push is required “to achieve a fundamental reorientation away from fossil fuels and greenhouse gas emissions.” Ackerman believes that the net long-run costs of decarbonizing the economy “could be surprisingly modest, as the growth of new industries will offset the decline of the old.” He asserts that the shift is likely to lead to net increases in employment. But nothing is said about the more specific challenges of the anticipated energy transition: how long will it take; how quickly will the need for back-up for intermittent sources of energy be satisfied from storage systems rather than—for instance—natural gas or nuclear; what other new energy sources or technologies lie out there in the future; what implications may there be for the goal of eradicating energy poverty suffered by those currently unable to access modern energy services and for avoiding the upward pressures of fuel poverty as households suffer rising energy costs?

This reviewer is inclined to conclude that, beyond considering scenarios and relevant precautionary actions for both possible climatic and financial events in the future, little can be said for “worst-case economics.” The first three and last five chapters of this book are reasonably sound, but

could have done with some elaboration and qualification. The middle seven chapters could have been compressed into one.

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Energy Economics Markets, History and Policy, by ROY L. NERSESIAN (Routledge, U.S. 2016), 628 pages, ISBN: 978-1-138-85837-4 Hardcover, eBook ISBN: 978-1-315-71806-4.

Energy has a long, complex history. The dynamics and interactions between energy resources, the resulting markets, and the overall impacts on nations makes for a fascinating study. This book endeavors to provide a history and overview of primary energy sources including energy consumption characteristics of individual nations, as well as market characteristics and energy policy. This is a large order for any book to achieve. The target audiences, as described by the author, are “those who are in a particular facet of energy and desire to broaden their knowledge, or for those just plainly interested in energy” (pg xxiv). In addition, the author includes problem and project sets at the end of each chapter, clearly targeting student audiences as well.

The book begins with an overall introduction to energy and policy that covers everything from the definition of energy, to measuring energy, to changes in energy consumption across time and across location, and also provides an overview of some policies. From there, the attention turns to electricity and the utility industry. This chapter provides a broad overview of a variety of topics including meeting peak demand, utility structures, and technological changes like smart meters. The chapter also provides a brief discussion of energy inputs, which serves as a springboard to the next several chapters, which deal with primary energy sources.

The primary energy sources included are biomass, coal, natural gas, nuclear, hydro, wind and solar, as well as geothermal and wave power. In addition, a separate chapter is devoted to the history of big oil, as is one devoted to the environment and sustainability. The structure of each chapter is determined by the energy source in question.

Chapter 3 focuses on biomass, providing a history of the importance of biomass as a fuel, with separate discussions of biomass and biogas for electricity generation, biofuel for ethanol, and finally biodiesel feedstocks. Chapter 4’s focus on coal provides not only the history of coal, but also a discussion of the arguments against coal and clean coal technologies.

Chapters 5 and 6 focus on oil, with the history of big oil in the first chapter and then turning to a discussion of supply, demand and reserves in the second chapter, as well as a discussion of oil shale. The history chapter is one of the best in the book, providing detail that may not be known by many, but that helps explain the evolution of the big oil.

Chapter 7, which focuses on natural gas, is developed with a focus on regulation and then turns to regional aspects of natural gas, as well as technological changes and transportation. This includes not only a discussion of hydraulic fracking, but pipelines and the rise of LNG. Chapter 8 couples nuclear power and hydropower, providing a history of each, with a focus on main characteristics and/or concerns. Chapters 9 and 10 introduce renewables including wind, solar, hydrogen, geothermal and wave energy, as well as considering climate change. The focus in these chapters varies, depending on the energy resource, with topics ranging from storage to finance. The book concludes with a chapter on the environment and energy sustainability that includes topics as wide ranging as the Kyoto Protocol to various views on sustainability.

The coverage of topics is at a very accessible level. The changing focus chapter to chapter, while providing an easy read, does not allow for an assessment of the interactions and tradeoffs between energy sources nor does it provide a structured treatment of energy economics. At times the narrative is opinion rather than fact-based. An example of this is the discussion (pp. 223–224)

on the breakout of costs of a gallon of gasoline that states the value gained from the portion of price that is paid to the oil industry is far greater than the value gained from the portion that goes towards taxes. The statement is made without support, or any type of discussion of what the benefits of either might be.

The breadth of subject matter, coupled with the broad target audience results in a book that tries to deliver on too many aspects of energy resulting in a sometimes cursory treatment of the economics of energy and of energy markets. The inclusion of problems and projects at the end of the chapters does not add to the book, as many of these do not follow from the chapter, or from the available online supplemental material. However, the book does provide energy histories that are both informational and entertaining to read. Given the variety of topics covered, the book may be of most interest for those wanting a general overview of energy history and policy.

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