lyzing the role of government in East Asian economic development.[3] Were we to apply this paradigm to the development experiences of developing countries, the complementary relationships between markets and states could have been explained quite differently from those in this book. (Hideki Imaoka)

[3] Masahiko Aoki, Hyung-Ki Kim, and Masahiro Okuno-Fujiwara, eds., *The Role of Government in East Asian Economic Development: Comparative Institutional Analysis* (London: Clarendon Press, 1997).

The Mystery of Economic Growth by Elhanan Helpman, Cambridge, Mass., Belknap Press of Harvard University Press, 2004, xiii + 223 pp.

In this book, Elhanan Helpman reviews and analyzes economic growth, by pointing out the importance of input accumulation, trade, inequality, innovation, productivity, and institutions. He uses the most basic concept to outline what we know, what we do not know, and what we ought to know about the subject in a comprehensive and understandable manner. Such an approach should enable even noneconomists to become involved in the "growth mystery" without resorting to complex mathematical formulations. This reviewer interprets the "growth mystery" as the inability to fully and systematically account for economic growth, in spite of the progress in our understanding of the above and other factors affecting it. Compounding the mystery is the fact that for some of these factors such as institutions, research is very limited, although they have the potential to revolutionize our understanding of the issue.

Three main features of this book stand out. The first (main) feature is the author's emphasis on quality ladders (directly resulting from innovation via the creative destruction process) and institutions as the main drivers of economic growth.[1] Building on Romer's model of knowledge externalities, the author argues that the mechanism of quality ladders is central to growth through the process of creative destruction in which higher quality products drive out lower quality ones from the market. The analysis on creative destruction is in agreement with similar views held by Schumpeter, and others, who consider that change is not a smooth adjustment at the margin, but is an abrupt and uneven displacement of one technology by another. Thus the author indicates that economic growth is a disequilibrium process in which some firms grow whilst others shrink from competition. This is contrary to the concept of Marshall and the mainstream neoclassical economists who place so much emphasis on equilibrium phenomena.

[1] Thus the author—just like Philippe Aghion and Peter Howitt ("A Model of Growth through Creative Destruction," *Econometrica* 60, no. 2 [1992]: 323–51), Paul M. Romer ("Endogenous Technological Change," *Journal of Political Economy* 98, no. 5, part 2 [1990]: S71–S102), and others—is a proponent of the New Growth Theory (NGT), in which economic policies exert a significant impact on the economy through changes in the incentives for innovation.

The second feature is the author's evident eagerness to adopt unorthodox approaches to the growth problem. Although he admits that he left out a large number of growth materials about which he significantly differs from the mainstreamers (itself a reflection of his unorthodoxy), this approach can be found throughout this book and is more evident in Chapter 5.

The third feature of the book is the author's careful and judicious use and review of the literature to support his arguments, thereby distinguishing it from similar studies on growth by Charles I. Jones, William Easterly, etc. In this book, the author refines the arguments presented in his earlier studies,[2] by including the latest empirical findings to confirm these propositions. For example, he cites several studies to explain away the criticism on scale effects that has been leveled against endogenous growth models.

In addition, it is also important to note that the author's writing style is quite formal and is such that at the end of each chapter he provides a summary for the reader's convenience. By beginning each chapter with an explanation of why the factors mentioned in the previous chapter cannot lead to sustainable growth, the author achieves the twin goals of linking up the chapters for easy follow-up by the readers as well as reminding readers that economic growth still remains a mystery.

The book is organized into four parts. In the first part, the author concentrates on the role played by the accumulation of both human and physical capital, as well as technology. In the second part, the author explores the role played by total factor productivity (TFP) in promoting growth, through innovation, learning by doing, externalities, as well as research and development (R&D). In the third part, the author describes the role of interdependence, knowledge flows, and international trade in growth. In the last part, he analyzes the importance of political and economic institutions for growth. This deliberate organization serves the author's purpose of outlining what we know already, what we do not know, and what it is that we have to learn.

Turning to the contents of the book, in Chapter 3, productivity is dealt with after the multiple controversies surrounding it are highlighted. The author rejects Solow's fundamental conclusions on growth (however modified by Mankiw, Romer, and Weil)[3] and concludes that productivity improvements driven by innovation are much more important than exogenous technology.

In Chapter 4, the forces behind TFP (such as innovation, R&D as well as learning by doing) are clearly explained. The author critically reviews growth theories after conveniently categorizing them into "first wave" and "second wave," and concludes that the mechanism of quality ladders is central to growth through the process of creative destruction. It is noteworthy that, while Romer considers innovation's role as that of expanding product range and assortment, the author considers it as essential in the creation of quality ladders, arguing that increased productivity is a result of continuous quality improvements. The author argues that R&D is more important than capital accumulation because it generates exter-

[2] Gene M. Grossman and Elhanan Helpman, *Innovation and Growth in the Global Economy* (Cambridge, Mass.: MIT Press, 1991).

[3] N. Gregory Mankiw, David Romer, and David N. Weil, "A Contribution to the Empirics of Economic Growth," *Quarterly Journal of Economics* 107, no. 2 (1992): 407–37.

nalities (which are important for growth) along with raising productivity, which in turn raises capital accumulation.

In Chapter 5, the author analyzes the impact of learning by doing, R&D as well as international trade on the growth process. He argues that interdependence through international trade promotes growth through knowledge spillovers, thus preventing diminishing returns on capital in small countries. The author's eagerness to adopt an unorthodox approach is quite evident in this chapter, as he raises some issues, which contradict conventional neoclassical thinking. For example, he states that merely unleashing market forces will not lead to sustainable growth, since growth significantly depends on initial conditions such as initial stock of knowledge, sectoral substitutability of goods, etc. Thus the market system is a necessary but not sufficient condition for growth. Most growth pundits with a free market orientation often conveniently ignore this important point. He further argues that protectionism operates differently in small versus large countries, primary goods producers versus producers of manufactures, and developing versus developed countries. He, however, points out (and importantly so) that the long-term growth and development of nations are rooted in interdependence and trade. Once again this reignites rather than resolves the growth mystery.

In Chapter 6, the author explores the symbiotic link between income inequality and growth. After reviewing several case studies, he concludes that the channels through which income inequality reduces growth have not yet been convincingly elucidated, and proceeds (in Chapter 7) to analyze the role played by institutions in the growth process.

In Chapter 7, the author analyzes the importance of institutions for growth and indicates that they are a critical part of the mystery of economic growth. These institutions encompass, among others, property rights, legal systems, customs, and political systems. The main message in this chapter is that economies whose social and economic institutions adjust quickly and are more receptive to the changes in technological advances are likely to experience faster growth than those in which the institutions adjust slowly. Thus institutions have the potential to be the major determinants of growth. Regarding the importance of legal systems for the growth process, the author concludes that the English legal system better protects property rights than the French system. However, it should be pointed out that the impact of the legal system on growth depends more on enforcement/nonenforcement of the rules than on the system per se. Furthermore, the significant trend toward hybridization and blending of the two systems should be considered. In this chapter, the author also notes the importance of geography for the growth process, and interestingly concludes (by quoting several studies) that once institutions have been taken into account, then geography ceases to be a significant factor in the growth process.

This reviewer agrees with the author's above explanation of growth since sustainable long-run growth has to be generated endogenously, possibly from innovation driven by creative destruction rooted in R&D and savings. It should, however, be pointed out that the pervasive potential of vested interests (itself an institutional factor) to block new technologies in favor of old ones cannot be underestimated, due to its numbing effect on the creative destruction and innovation process. For example, it is generally recognized that part of the reason why Britain lost its industrial edge to the United States can be ascribed to the fact that, the same interests that had fostered the industrial revolution, later hindered further technological progress.[4] In addition, it is also important to note that creative destruction may not guarantee growth in cases where the development of new technology coincides with cyclical or global economic depressions. In such cases, creative destruction may coexist with slow or even declining growth.

A brief comparison of this book with a similar one on growth by W. Easterly[5] (written for a broader audience and in nontechnical language) clearly shows that while Helpman employs the quality ladders' argument to explain growth, the latter emphasizes the importance of incentives for knowledge accumulation, and overall growth process. By using the concepts of knowledge leaks and matches, Easterly argues that poor nations are so because they receive knowledge leaks and matches from other poor people, thus weakening incentives for knowledge accumulation and innovation. Therefore these additional factors are also important for explaining the economic growth mystery in both developing and developed countries.

Although Helpman employs a literature review approach (even though he indicates that his book should not be taken as literature review per se) and is mainly preoccupied with explaining growth in a developed country context, Easterly adopts a case study approach (drawing the case studies from developing countries) to reconcile the growth problem with the realities in both developing and developed countries. It is worthwhile noting that in spite of this, Helpman's book significantly complements studies on growth conducted by W. Easterly, C. Jones, P. Aghion, and P. Howitt, among others.

Overall, the book is well written, and the author is indeed highly knowledgeable on the issue at hand and his views are quite insightful and helpful in our understanding of economic growth, along with providing encouragement to developing countries. This reviewer agrees that, even though the innovation argument (driven by the creative destruction process of fostering quality ladders) explains much of the mystery and significantly characterizes growth in most developed countries, further research into and understanding of areas such as institutions including customs, legal systems, etc. could revolutionize our understanding on the issue. Thus, the author has indeed managed to fulfill the purpose of his book, namely of highlighting what we know, what we do not know, and what we ought to know about growth, without resorting to abstract and theoretical constructions. By repeatedly stating, "conclusions in this regard can only be viewed as tentative," the author shows that his work should not be considered as exhaustive but as a critical input into the ever growing and dynamic field of growth economics. (Masiiwa Rusare)

[4] Joel Mokyr, *The Lever of Riches* (New York: Oxford University Press, 1990).

[5] William Easterly, *The Elusive Quest for Growth: Economists' Adventures and Misadventures in the Tropics* (Cambridge, Mass.: MIT Press, 2001).