Gordon, Robert J. *The Rise and Fall of American Growth: the US Standard of Living since the Civil War*. Princeton, NJ: Princeton University Press, 2016. vii + 762 Pp.

Professor Gordon's mainstream career in productivity measurement and national income accounting is used to good effect in this book. He also now ventures more deeply into history, citing in aid the best economic and technological historians, including Paul David, Alex Field, David Edgerton and his Northwestern University colleague, Joel Mokyr. He has also read widely in urban, social and culinary history, so his claim to offer "a unique blend" (p. xii) is entirely justifiable. He revels in a broader engagement of the kind straight historians used to see as a strength of their craft: thinking oneself into the role of historical participants, rather than falling into the trap of viewing historical events with Whiggish hindsight. He has been inspired not only by contemporary statistics and documentary evidence, but by maverick books like Otto Bettman's *The Bad Old Days: they were really terrible,* and evidence on branding innovation from the Lea & Perrins Worcestershire sauce bottle on his Chicago kitchen table. The result is an account with an acute sense of the materiality of the historical world. One can readily picture him wondering what it was like to be a poor southerner confined to a diet of hogs and hominy; a northern suburban self-builder of a Sears bungalow pack, enjoying running hot water, electricity, and an indoor flushing toilet for the first time; or the frustrated Clarence Birdseye inventing frozen food before most people had the equipment to use it. It really shows. This book is a remarkable (because almost extinct) specimen of a hybrid that should be treasured: history with roots in hard core "new" economic history, yet with broader appeal to general historians.

It is much more than that: its central purpose is to use these techniques to clothe his conviction that America passed the high point of its remarkable achievements in improving living standards, well before the close of the "American century." One can quibble about when the highest productivity achievements were: Gordon pushes the 1940s ahead of Alex Field's 1930s. Others think the evidence for the 1920s has been too easily

dismissed (Bakker, Crafts and Woltjer, 2019). Such debates are replete with warnings that we may not have correctly measured many of the variables in our growth equations, but he convincingly argues that growth since 1970 has been slower. He does not see this as driven by external factors. It is not because others beat the US, but rather because the internal dynamics that drove it have reached their limits. Our children may expect mildly improving living standards, but they cannot again experience the progress that four generations of Americans from 1870 to 1970 came to take for granted. The slowdown has already happened over five decades. Briefly resumed high productivity growth in the later 1990s merely showed how limited the potential of the much-trumpeted ICT revolution was, compared with earlier waves of innovation. So our palpable ambitions to replicate historical achievement levels will, he predicts, likely end in disappointment.

The view that "prediction is very difficult, especially if it's about the future" is so obviously right that it is (unreliably) attributed to as varied a range of luminaries as Mark Twain, Niels Bohr and Yogi Berra. Gordon sets out to prove it wrong. A good deal of his confidence rests on the achievements of national income accountants and economic historians in understanding the century that has passed. Yet, a little reflection on whether we could *ex ante* have predicted the earlier accelerating growth experience that he lauds suggest greater modesty might be appropriate. Victorians had a sense of achievement very similar to opinions a century later. Reading the *Edinburgh Review* in 1879 it is easy to mistake it for Gordon's modern sense of wonder about past achievements: "The present generation is witness to the most profound revolution that has occurred on our planet since the appearance of man on earth. Although we may readily imagine that we have only seen the commencement of the change, yet scarcely a day passes without affording fresh evidence of the magnitude and rapidity of succeeding changes." Did people then know that – with these once unimagined wonders behind them - the century ahead was going to see even more rapid growth of human productivity than had already been achieved?

Perhaps optimists would indeed have expected much from new scientific advances or new methods of business organisation. Yet it was

not long before economists were producing the theories of "secular stagnation" that now echo in some of his own pessimism. If Victorian optimists had been given an additional clue from the crystal ball that the countries of the largest part of the advanced world's economy (which was, of course, then western Europe) would be engulfed by ten years of more destructive wars than anyone had ever seen; and that the largest New World economy (which was, of course, the US) would not only be dragged into the wars but suffer a worse 1930s Great Depression than much of Europe, their optimism might have been more restrained.

Towards the end (pp. 589-601), Gordon bravely takes on the challenge of technological forecasting. He argues against his colleague Joel Mokyr's wise view that the human brain is incapable of forecasting future innovations. His highly selective run through past successful technological forecasting is Whiggishly selective and quite unpersuasive. It omits, for example, any consideration of the predictions in Herman Kahn and Anthony Wiener's 1967 book on the *World in 2000*. As both Paul Krugman in the *New York Times* and John Kay in the *Financial Times* have pointed out, they turned out to be excessively pessimistic about ICT innovations and ludicrously overoptimistic about most other things (from fast Boston-Washington trains to cancer cures and underwater cities). He is right to say that numbers do not always lie (techno-optimists still need to deliver in the productivity statistics), but perhaps unwise to believe the numbers will not change. Whatever happens to innovation, he is right to say it will have to work hard to make progress in improving median incomes against the four US headwinds of rising inequality, sluggish growth of educational attainments, falling work hours and an expensively ageing population.

Gordon's coverage is self-confessedly almost entirely US-oriented. That inevitably overstates the distinctive US contribution to US growth, though he genuinely tries to escape that trap, noting, for example, that the transformation of entertainment by public television broadcasts was pioneered "exceptionally" in Britain, by the BBC, not by RCA. Presumably he means exceptionally, with the exception of radio, radar and Alan Turing's proto-computer? Of course, the potential for learning from Europe was much larger in the early decades of the twentieth century

(when Europe remained larger and won more Nobel prizes than the US) than it is today (when the reverse is true), though as Gordon reports (p. 572) the foreign contribution - at least as indicated by the nationality of US patents - increased after 1950. Will the potential gains from trade and technology pioneering in Asia (which now exceeds US GDP and is catching up in scientific research achievements) be even more substantial in future? Perhaps not, because innovations are too directed towards political repression, but perhaps that will change? Perhaps on some dimensions (like using centralised medical records for innovations in health and genetics) foreign researchers have an advantage over Americans? Moreover, as he so eloquently points out in relation to his golden age, many innovations with tremendous effects in improving living standards - from domestic sewers and water supplies to containerisation - did not need new scientific breakthroughs. The same is true of running fast trains, reducing the prison population from Saudi Arabian to European levels, honest accounting for pension deficits, building a border wall or reducing the growing inequalities and inefficiencies in American inner-city education and health care (adjust these or other policies according to your own political prejudices, or as his final shrewd chapter on policy options proposes).

Gordon might be wrong to see the slowdown as the result of the natural exhaustion of ideas, as significant innovations become inherently harder. There are alternative explanations for sluggish trends in innovations and productivity. Perhaps "superstar" firms and rich elites now use their market power and wealth to lobby to entrench their positions rather than to innovate and improve efficiency? If so, can the revolt of the dispossessed influence Congress to reverse the forces which have enabled this, such as the Citizens United decision of a debased Supreme Court? There is a great deal about the future that we do not know. What I do know - if the past is a guide – is that the future is likely to have some very pleasant and some very unpleasant surprises.

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Gordon, Robert J. *The Rise and Fall of American Growth: The U.S. Standard of Living since the Civil War*. Princeton, NJ: Princeton University Press, 2016. vii + 762 Pp.

For some time, Robert Gordon has been a vocal techno-Cassandra arguing that America's golden years of economic growth lie in the past with the great inventions of yesteryear greatly outstripping in social and economic impact those of the more recent past or yet to come. This volume provides a definitive statement of Gordon's thesis. Although Gordon's volume abounds in insights and provocations regarding trends in economic growth, the true forte of the volume is in its coverage of the topic of the volume's subtitle, the standard of living in the U.S., for roughly the last one hundred and fifty years. The volume provides extremely rich and detailed qualitative and quantitative information on a wide variety of dimensions of living standard changes over the period covered.

The book has a tripartite organization reflecting its emphasis on living standards. Part I covers particular aspects of living standards between 1870 and 1940 while Part II considers similar aspects between 1940 and the present. Part III then turns to growth as such and in particular "sources of faster and slower growth." The overall conclusions are that living standards improved much more dramatically between 1870 and 1940 than subsequently and that the factors contributing to slower growth in recent decades are likely to continue for the foreseeable future.

Some common topics are considered in each of the two parts on living standards. These include food and clothing, housing including illumination and plumbing, transportation, communications and entertainment, and life expectancy and disease. Gordon details both through qualitative description and quantitative visualization how between 1870 and 1940 such innovations as the spread of indoor plumbing, electric lighting, electric appliances, the automobile, telephone, telegraph and radio dramatically improved the quality of life for most Americans. Furthermore, improvements in urban sanitation during this era led to marked improvements in health and life expectancy. In contrast, Gordon argues that changes after 1940 were far more incremental in economic and social impact.

Each of the chapters in the living standards sections contains a dazzling array of quantitative and qualitative information. The qualitative detail is especially impressive. Overall the material in the first two sections are essential reading for anyone with even a passing interest in American trends in living standards and are likely to remain so for some time to come. However, there are weaknesses to Gordon's exposition on living standards. An admittedly minor one are the author's autobiographical anecdotes sprinkled throughout the volume. While initially charming to hear about the author's fond recollections of his family's 1940 Chevrolet while a boy in Chapter 5, by the time one gets to chapter 11 the mention of his use of frequent flyer miles accumulated from academic conferences seems a bit trite. Much more significantly, given the sheer array of material considered, individual topics typically get just a few pages of exposition which does not permit examination in depth. The exposition is based primarily on secondary literature and for many topics work completed within the last 5 years is not cited. In some sections, the author does offer incisive critical discussions but at other points seems to accept existing and even controversial studies at face value. Thus, while Gordon provides a tour de force synthesis and an invaluable starting point for each of the topics he considers, his treatment of specific topics is hardly definitive. While his coverage is amazingly broad it is not exhaustive. For example, trends in dentistry gets only cursory mention even though there have been major developments and contributions to the quality of life in

this dimension over the past hundred and fifty years. A few chapters such as one on credit, insurance, and government mitigation of risk relate more tangentially to living standards.

Part three of the book features Gordon's claim of first an acceleration then deceleration in growth. Its first chapter takes up the "great leap forward" from 1920 to 1950 considering and largely concurring with Paul David's and Alexander Field's claims that the acceleration in productivity during this period can be attributed to such innovations as the spread of electrification and the policy impacts of the New Deal and the Second World War. The subsequent chapter takes up why more recent and future inventions will not match the great inventions of the past suggesting that opportunities for fundamental innovation are largely exhausted. The final substantive chapter takes up inequality and other factors the author thinks will create headwinds in the future for economic growth. These chapters are not as compelling as the material on living standards, being subject to more debate and less grounded in factual detail. However, if there is some speculation in Gordon's forecasts about prospects for future growth and productivity advance, he is quite explicit about his methodology for developing these forecasts.

Gordon's underlying argument for slowing growth is based, as already noted, on the claim of limits to opportunities for further technological advance. Given this, the volume says surprisingly little about the institutional context for technological advance over the period he considers. Little is said about the relative importance of industry, government or academia in generating innovations or of independent inventors versus corporate R&D labs as settings for innovation. And the name of the prominent economic historian of technology, Nathan Rosenberg, does not appear in Gordon's bibliography. Gordon's pessimism about prospects future innovation is strongly disputed by some scholars, one notable example being his Northwestern colleague, Joel Mokyr (See Mokyr 2018).

Finally, one must wonder whether the author could have made the book's fundamental points in about a third of its actual space, especially with selective pruning of the detailed material on living standards. However, if only a stalwart minority of readers end up perusing all 652

pages of its main text, a wide array of both general and specialist readers will find it very rewarding to at least sample part of this volume's richness.

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Historians of the New Deal and the Great Depression have long been captivated by the progressive synthesis, a paradigm that stresses active presidential leadership and liberal reform. In dealing with the 1930s, historians used President Herbert Hoover largely as a negative symbol, a contrast to the activism of President Franklin D. Roosevelt, who is portrayed as the leader who enabled the nation to pull out of the worst depression in its history and triumph in a world war against fascism. Most textbooks in the field still use some variant on this ideologically framed history. Most students in American high schools still learn to see the larger dimensions of modern American history in terms consistent with the progressive perspective.

In recent years, however, some of the most interesting New Deal scholarship has been skeptical of the programs introduced in an effort to pull America out of the Great Depression. Social scientists in a number of disciplines have asked tough questions about the political economy of the 1930s and begun to dig beneath the surface of political rhetoric as they study the agencies and policies of the New Deal. Leaders in this effort