1. Introduction

D.S. Prasada Rao and Bart van Ark

1.1 BACKGROUND

What was the world’s average per capita income in the year 1 AD? Why could China’s expansion not last beyond the 13th century? Why and when did the West get rich? Why did Sub-Saharan Africa not take off? Why is India still poor? While Angus Maddison will probably be most widely known for his long term series on gross domestic product and per capita income, going back many centuries, he more than anyone else used it to develop an immense research portfolio which shed light on those and other fundamental questions.

Angus Maddison was an example of this rare brand of scholars who didn’t shy away from the big issues in economic development and growth. On 24 April 2010 he died at the age of 83. It was the end of a fascinating life and an impressive and internationally acclaimed career in reconstructing and studying the history of economic performance. Angus’ work has been widely acclaimed and he has been honored both during his lifetime and since he passed away.

This book represents one of those honors. It is a collection of revised versions of a set of core papers which were presented at mini-conferences held in Groningen and Brisbane on the occasion of Angus Maddison’s 80th birthday in 2006. The Groningen meeting focused on the long term growth performance in the Western Hemisphere, whereas the Brisbane meeting had prime focus on Asia.

1.2 OVERVIEW

This introduction briefly summarizes the papers published in this volume. All papers in this volume highlight the importance of institutions, and other ultimate causes of growth such as policy actions and changes in the international order. The more qualitative and historical discussion of ultimate causality highlight the deeper forces which explain the proximate causes of
growth. The latter represent the primary factors of production, such as increased supply of labour and capital, and improved quality of labour and physical capital, but also structural change and total factor productivity.

The Chinese economic performance over the last two decades has been spectacular and the envy of the world. There is considerable debate as to when China will overtake the US as the world’s largest economy. In Chapter 2, Angus Maddison examines the Chinese performance over a period spanning more than a millennium covering the period 960 to 2005 and presents forecasts to 2030. The chapter identifies six phases of the Chinese economy. Maddison’s analysis starts with the Sung dynasty from 960 to 1280 AD which is identified as the first phase of economic transformation. During this period China experienced rapid population growth as well as an increase in real per capita income by a third and at the same level as that in Western Europe. The second phase, 1700 to 1840, is considered to be a period of stagnation and one of isolation from outside the world. The third phase spanning 1840–1950 witnessed internal conflicts and foreign intrusions and a decline in real per capita income by a third. During the fourth phase of the Maoist period of 1950 to 1978 there was a modest recovery in per capita income. A spectacular recovery in the Chinese economic performance started during the fifth phase during 1978 to 2008 a period characterized by pragmatic reforms and impressive growth rates in GDP well above those observed in the rest of the world. Chinese share in the world GDP increased to 16.8 per cent by 2006. Maddison’s analysis projects growth in real per capita income around 4.5 to 5.6 per cent per annum during the period 2006 to 2030 which will make China the largest economy by 2030 with a share of 25 per cent of the world GDP.

Justin Lin’s chapter follows on from Chapter 2 as it analyses the economic performance of China since the Sung Dynasty with the prime objective of offering credible answers to the Weber Question and the Needham Puzzle and the question as to why the industrial revolution did not originate in China despite the existence of a number of favourable preconditions. These are framed in the form of the Needham puzzle which asks why China had been so far in advance of other civilizations and despite its position why China has lagged behind the rest of the world. In this fascinating chapter, Lin critically evaluates a number of arguments and counter arguments in this debate and offers his own explanation. In particular, he concludes that the incentive system embedded in the civil-service examination system in the pre-modern times made Chinese talents to focus on Confucian classics, prevented them from accumulating human capital in other areas which in turn deprived China from the opportunity of indigenous scientific and industrial revolutions. His main conclusion is that if China maintains its transition to market economy and continues to tap into the Gerschenkronian growth potential of “the
advantage of backwardness” it is likely that China will maintain a dynamic GDP growth rate for several more decades.

Chapter 4 by Deepak Lal focuses on India, the second most populous country, which has posted consistent and impressive growth rates over the last decade. Lal traces the history of economic policy in India and assesses its growth performance since its independence in 1947. The post-independent India posted a low but consistent Hindu rate of growth of 3.5 per cent against a population growing at 2.2 per cent until the 1980s. Lal traces the first steps towards liberalization and reform in the mid-1980s and the resumption of these policies in the early 1990s by the current prime minister and the then finance minister, Dr. Manmohan Singh. During the period 1993–99 the output per worker grew at a rate of 5.8 per cent which may be considered as a turning point. Lal identifies agricultural growth based on the Green revolution as a major source in the first two decades since independence. Though there has been an increase in manufacturing employment and output, the fastest growth since the 1980s has been in the services sector spanning both the modern and traditional service thus making Indian growth somewhat atypical of the international growth patterns. In looking to the next two decades, Lal argues that if the recent strong growth in savings, around 35 per cent, is maintained then a growth rate of 10 per cent in the foreseeable future would be possible even without further reforms.

In contrast to the chapters on China and India, Stanislav Menshikov’s Chapter 5 on Russia focuses on the recent transition period since 1991. The chapter looks at the initial shock and decline and the subsequent stagnation during the period 1991 to 1998 and contrasts it with the overall growth performance since 1998. Menshikov studies the anatomy of the crisis, beginning in 1991, and identifies spectacular contractions in personal and government consumption as the major drivers with strong increases in net exports providing a cushion. An equally impressive recovery in the Russian economy since 1999 is attributed to a substantive devaluation of the ruble and sharp increases in the prices of exported oil and natural gas. Menshikov’s calculations suggest that domestic demand accounted for nearly 75 per cent of total GDP growth during 1998–2005 while 25 per cent is attributed to net external demand. Using the growth in capital, labour, reductions in unused capacity and estimates of TFP growth during the period 1998 to 2005 and making a few plausible assumptions, Menshikov projects annual growth rates of 7 and 5.5 per cent respectively in the periods 2003–2015 and 2015–2030. These growth rates compare well with projected growth rates for 14 other nations including China, Brazil and India. Menshikov predicts that Russia will be the fifth largest economy in 2030 with an estimated share of 5.5 per cent of world GDP.
Japanese post-war growth and economic performance and the deceleration in growth since the oil crisis in 1973 have been the subject matter of considerable research. In Chapter 6, Kyoji Fukao and Osamu Saito examine the main features of Japanese growth performance since the Meiji period in 1868. During the early period Japan successfully exploited the Grechenkronian situation of being in a materially and institutionally backward state compared to the Western countries. During the period from 1850 to 1950, Japan kept pace with the world average while performing well below Western Europe. The accelerated growth performance from 1955 to 1973 and the processes underlying the dramatic transformation of Japan form the core of the chapter by Fukao and Saito. Limited opportunities for TFP growth in the manufacturing sector after catching-up with the United States and a decline in the working-age population and the relatively high saving levels are listed as some of the main factors for the stagnation over the last two decades. The authors tend to concur with the projections made by Angus Maddison of a modest GDP per capita growth of 1.3 per cent during the period 2003 to 2030. The authors conclude that unless a new and promising regime of productivity growth in the service sector emerges, growth prospects for Japan appear to be limited.

In Chapter 7 Ross Garnaut examines the prospects for global economic performance in the next two decades and more importantly discusses the institutional structures to the trading systems and environments required to sustain economic growth. Garnaut’s chapter briefly reviews the salient features of growth performance of nations in the Golden Age, 1950–73, in the Silver Age spanning the period 1973 to the end of the twentieth century and then assesses the projections made by Maddison in Chapter 2 of this book. The author argues that the growth rates for China and India by Maddison are conservative and concludes that global growth rates during the period 2003–2030 dubbed as the Platinum Age would exceed those experienced during the Golden age. The author stresses the need for adequate management of international public goods including international security, focus on the problems arising out of increasing global inequality; the importance of external environmental costs of economic growth; and, finally, the need to dismantle barriers to free trade.

In Chapter 8 Pierre van der Eng provides revised estimates of economy wide TFP growth rates for Indonesia over the period 1950 to 2005. The chapter demonstrates the importance of checking the accuracy of the national accounts figures before using them for TFP growth estimation. Using meticulously constructed series of GDP, capital stock and education-adjusted labour force figures along with estimated labour shares, the chapter shows that TFP growth over the whole period was a negative 0.1 per cent and its contribution to GDP growth was found to be a negligible 2 per cent. In fact
the only period during which TFP growth was found to be positive was the more recent decade 2000–2010 with a growth of 1.6 per cent which contributed 30 per cent to the overall GDP growth during the decade. A major innovation in the chapter is its attempt to conduct analyses to determine the validity of the key assumptions that underpin the TFP computations such as perfect markets and efficient production practices and concludes that the positive TFP growth observed during 2000–10 is due to improvements in efficiency rather than technical change. The general conclusion is that Indonesian data supports the Krugman hypothesis for growth in Indonesia during the study period, 1950 to 2000.

Chapter 9 by Adam Szirmai takes a holistic view of the process of economic development and examines the sources of growth. Noting the failure of mono-causal explanations, the author embarks on a detailed examination of the proximate, intermediate and ultimate sources of growth. Absorptive capacity and ability and willingness to tap into global technology are identified as key sources of catch-up for developing countries. The Greschenkronian advantages of backwardness allow countries to profit from technological advance without having to bear many of the costs and risks. The main conclusion of the chapter is that countries need to go all out to acquire and assimilate international technology or otherwise risk stagnation.

Chapter 10 by André Hofman and Francisco Villarreal explores the medium-term growth prospects for countries in Latin America. The authors pursue a rigorous econometric approach to measure the performance and to forecast future performance. The chapter uses a production function approach with time-varying trend which makes it possible to characterize long-term potential output and to forecast its future evolution using a parametric model. The model is then expressed in the state-space form. The authors use estimated econometric models in assessing growth performance of a selected set of countries in Latin America under several scenarios. Under the baseline scenario which assumes that capital accumulation and multifactor productivity will continue to grow at current trends and with population growth projected to decline over the medium term, the chapter reports that Brazil will experience an average annual growth rate of 1.6 per cent over the period 2005–2030 compared to a projected growth rate of 4.3 for Chile and 2.6 for Argentina.

Chapter 11 by Bart van Ark, Mary O’Mahony and Marcel Timmer places Europe’s growth experience since WWII in a comparative perspective with the United States. The authors provide a breakdown of Europe’s output and productivity into the contributions of labor, capital and multifactor productivity. They conclude that following several decades of catching up on the U.S., Europe saw a widening of the productivity gap since the mid 1990s. The failure to realize the potential productivity gains of information and
communication technology (ICT) in the services sector is identified as a major cause. The authors conclude from a range of growth scenarios that that the chances of accelerating future growth by way of a strengthening of manufacturing productivity, or through an acceleration in services productivity has limited scope for success, in part due to the region’s demographic burden of a rapidly aging population, and the difficulty to realize a deepening of Europe’s single market for services.

In Chapter 12, Robert Gordon discusses the prospects for growth in the United States in the light of the historical growth performance during the long century from 1891 to 2007. Building on his previous work, the author revisits the latest quarterly, annual and long term estimates of U.S. productivity growth. The extraordinarily rapid productivity growth during the “one big wave” from 1929–1950 period, caused by the major technological and institutional inventions of that era, is contrasted with the sources of growth for the next 20 years. Gordon argues that the productivity gains during the first decade of the 21st century were primarily the result of declines in working hours and “cost cutting” which strengthened profits but cannot sustain long term growth. Taking this pessimistic view on the prospects for technology to take over as the leading source of growth, Gordon’s results imply that American GDP per capita is unlikely to grow at more than 1.5 per cent for the next 20 years, which is far below the 2.17 per cent of the previous 80 years.

1.3 EPILOGUE

After the sad demise of Angus Maddison, as editors we have decided to include an epilogue consisting of reprints of Angus’ own memoirs which was published in the Banco Nazionale del Lavoro; a hitherto unpublished overview of his research objectives, which he wrote in the early 2000s, and his obituary published in The Review of Income and Wealth in September 2010.

The chapters in this volume are a tribute to Angus Maddison’s contribution to the economics profession which was spread over a period of more than half century. To continue the scholarly work on the analysis of the sources of economic growth and stagnation, his unique data series will be an indispensable tool. A group of scholars, including several of the authors that contributed to this volume, have recently founded and joined The Maddison Project http://www.ggdc.net/maddison/maddison-project/index.htm. This is a coordinated effort to gradually build upon Angus’ work to extend and update his data series. It will remain a crucial tool for the analysis of long term economic growth. Angus Maddison will be missed. But his legacy will stay, and many will continue the work in his spirit.