Economic Growth in Europe

Why has European growth slowed down since the 1990s while American productivity growth has speeded up? This book provides a thorough and detailed analysis of the sources of growth from a comparative industry perspective. It argues that Europe's slow growth is the combined result of a severe productivity slowdown in traditional manufacturing and other goods production, and a concomitant failure to invest in and reap the benefits from Information and Communications Technology (ICT), in particular in market services. The analysis is based on rich new databases including the EU KLEMS growth accounting database and provides detailed background of the data construction. As such, the book provides new methodological perspectives and serves as a primer on the use of data in economic growth analysis. More generally, it illustrates to the research and policy community the benefits of analysis based on detailed data on the sources of economic growth.

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A Comparative Industry Perspective

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CAMBRIDGE
UNIVERSITY PRESS

CAMBRIDGE UNIVERSITY PRESS
Cambridge, New York, Melbourne, Madrid, Cape Town, Singapore,
São Paulo, Delhi, Dubai, Tokyo, Mexico City

Cambridge University Press
The Edinburgh Building, Cambridge CB2 8RU, UK

Published in the United States of America by Cambridge University Press, New York

www.cambridge.org
Information on this title: www.cambridge.org/9780521198875

First published 2010

Printed in the United Kingdom at the University Press, Cambridge

A catalogue record for this publication is available from the British Library

Library of Congress Cataloguing in Publication data
Economic growth in Europe : a comparative industry perspective /
Marcel P. Timmer . . . [et al.].
p. cm.
Includes bibliographical references and index.
1. Europe – Economic conditions – 20th century – Case studies.
2. Europe – Economic conditions – 21st century – Case studies.
3. Industrial policy – Europe – Case studies. 4. Technological
innovations – Economic aspects – Europe – Case studies.
I. Timmer, Marcel. II. Title.
HC240.E273 2010
338.94 – dc22 2010023577

ISBN 978-0-521-19887-5 Hardback

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Preface and acknowledgements

Economic growth is a key factor in the improvement of our living standards and hence of great interest to academics and policy makers alike. This book aims to explain why growth across Europe has been disappointing since the mid 1990s, both compared to earlier periods and compared to the United States, which showed resurgent growth after 1995. In the process we present the EU KLEMS database, a rich data toolbox that can be used to explore these and other growth-related questions. The main message of this book is that an industry perspective on growth and the sources of growth is essential because of the great diversity in the drivers of growth in agriculture, manufacturing and services industries, including trade, transport, financial, business and personal services.

The empirical study of sources of economic growth has a long tradition in Europe, starting as far back as the seventeenth century when William Petty began to construct measures of economic performance including comparisons of output and productivity in industry, trade and transportation. Over the centuries, with the emergence of standardised national accounts and other internationally comparable statistical sources, the measurement of sources of growth has become more sophisticated. During the second half of the last century, growth accounting evolved as a standard methodology. In 1987, Jorgenson, Gollop and Fraumeni published a pioneering study laying out what has become known as the KLEMS approach. The KLEMS method measures the changes in the quantity and quality of capital (K), labour (L), energy (E), material inputs (M) and service inputs (S) as contributions to output growth. This approach has subsequently been particularly useful in tracing the effects of the development and deployment of information and communication technology (ICT) on the resurgence of the American economy since 1995 (Jorgenson *et al.* 2005).

While the KLEMS methodology has been replicated in studies for some individual countries, a standardised comparison of European

countries has not been available until recently. This became increasingly pressing in the early 2000s as European productivity growth seemed to be on a declining trend, in the context of accelerating growth in the United States and increasing competition from emerging economies such as China and India. The slowing growth and faltering emergence of the knowledge economy in Europe led to an ambitious action programme of the European Commission, called the 'Lisbon Agenda', aimed at boosting competitiveness, primarily through innovation. Monitoring and evaluation of progress in achieving these goals required a comprehensive analysis of economic growth in Europe based on a detailed industry-level database. With evidence of the rising importance of ICT and market services for growth, there was also renewed attention given to measurement issues and the international comparability of national statistics. Clearly, there was an increasing need for new methods, comparable statistics and convergence of methods of measuring productivity. The aim of the EU KLEMS initiative set up in 2003 was to meet this demand.

This study is the result of the multi-year, multi-national endeavour involving a large consortium of researchers. It was supported by the European Commission, Research Directorate-General as part of the 6th Framework Programme, Priority 8, Policy Support and Anticipating Scientific and Technological Needs, and is part of the EU KLEMS Project on Growth and Productivity in the European Union. The grant made it possible to form a consortium of eighteen partners, including universities and research institutes across Europe, as well as Japan and the United States. The result of this collaboration is the EU KLEMS Growth and Productivity Accounts database, publicly available at www.euklems.net. This database includes measures of output and detailed capital and labour inputs, and derived variables such as labour and multi-factor productivity at the industry level. The measures are developed for twenty-five individual European Union member states, the United States and Japan and cover the period from 1970 onwards. This book combines a documentation of the EU KLEMS methodology and database with a number of analytical studies that have been carried out using the database. It can therefore be used as the primary reference work for the current and future versions of the EU KLEMS database. In particular Chapters 3 and 6 provide a detailed account of the growth accounting and level accounting methodologies used in the EU KLEMS project. The analysis in the book is

primarily focused on the comparative output and productivity performance of the European Union, relative to the United States. In this respect, Chapters 2, 4 and 5 reflect our assessment of the comparative growth performance of the two regions during the period 1980–2005.

The current book is a reflection of the significant work carried out by the EU KLEMS consortium that has led to the creation of the online database, and a series of academic and policy publications on growth and productivity. The data work for the EU KLEMS Growth and Productivity Accounts would not have been possible without the input of all consortium members and the persons belonging to these institutions. Our thanks go to Centre d'études prospectives et d'informations internationals (CEPII), Paris (Michel Fouquin, Laurence Nayman, Anita Wölfl); Centre for Economic and Business Research (CEBR), Copenhagen (Martin Junge, Svend Hougaard Jensen, Mickey Petersen); Netherlands Bureau for Economic Policy Analysis (CPB), The Hague (Henry van der Wiel, Ate Nieuwenhuis, Paul de Jongh); Deutsches Institut für Wirtschaftsforschung e.V. (DIW), Berlin (Bernd Görzig, Martin Gornig, Rainer Vosskamp); Federaal Planbureau (FPB), Brussels (Chantal Kegels, Bernadette Biatour, Jeroen Fiers, Bernard Klaus Michel, Luc Avonds); Istituto di Studi e Analisi Economica (ISAE), Rome (Carlo Milana); Instituto Valenciano De Investigaciones Economicas (IVIE), Valencia (Matilde Mas, Javier Quesada, Ezequiel Uriel, Lorenzo Serrano); Helsingin kauppakorkeakoulu (Helsinki School of Economics) (Matti Pohjola); Austrian Institute of Economic Research (WIFO), Vienna (Michael Peneder, Kurt Kratena, Martin Falk); Vienna Institute for International Economic Studies (WIIW), Vienna (Peter Havlik, Monica Schwarzhappel, Robert Stehrer, Sebastian Leitner); Amsterdam Business and Economic Research (AMBER), Free University Amsterdam (Eric Bartelsman, Hans Quene); University of Konstanz (Jörg Beutel); The Conference Board Europe, Brussels (the late Robert McGuckin III, Janet Hao); Harvard University (Dale Jorgenson, Mun Ho, Jon Samuels); Pellervo Economic Research Institute (PTT), Helsinki (Janne Huovari, Jukka Jalava) and individual contributors such as Kyoji Fukao (Hitotsubashi University), Tsutomu Miyagawa (Gakushuin University), Hak K. Pyo (Seoul National University) and Keun Hee Rhee (Korea Productivity Center). We are particularly grateful to our colleagues at the University of Groningen, the National Institute for Economic and Social Research (NIESR) and the University of Birmingham for all their support

during various phases of the project. At the University of Groningen our thanks go to Gerard Ypma, Ton van Moergastel and Edwin Stuivenwold for their excellent work in getting the first EU KLEMS database off the ground, and to Jop Woltjer for his seamless continuation of this work. Lourens Broersma, Carolina Castaldi, Erik Dietzenbacher, Abdul Azeez Erumbam, Reitze Gouma and Bart Los provided additional help and advice. We are also grateful to Rob Willems for administrative support to the project. At NIESR, our thanks go to Mari Kangasniemi, Peter Loveridge, Ana Rincon and Catherine Robinson; and at the University of Birmingham to Yasheng Maimaiti, Fei Peng and Nicholas Zubanov.

An important element in the success of the EU KLEMS project has been the co-operation with national statistical institutes across the European Union. The growth accounting system will hopefully be implemented by national statistical institutes and Eurostat as part of their regular statistical systems. While we received very useful advice from all statistical institutes across Europe, we have particularly received significant in-kind help from Statistics Netherlands (Mark de Haan, Dirk van den Bergen, Bert Balk, Hans Kolfoort), Statistics Finland (Pirkko Aulin Ahmavaara and Antti Pasanen), the Office of National Statistics, UK (Anna Soo and Tuu Van Nguyen), ISTAT, Italy (Cecilia Joan-Lasinio, Massimiliano Iommi, Antonella Baldassarini), Statistics Luxembourg (John Haas) and Statistics Sweden (Hans-Olof Hagén and Tomas Skytesvall). Researchers from the OECD played an important role, both as external observers and advisors; we would like to thank in particular Colin Webb, Dirk Pilat, Paul Schreyer and Nadim Ahmad. We are also grateful to Eurostat, especially to Arturo de la Fuente, Frank Schönborn, Leonidas Akritidis and Jukka Jalava for their support in arranging regular meetings with the National Accounts Working Party as well as setting up the statistical module of the EU KLEMS database at the Eurostat website. We received strong support from the European Commission Services throughout the project and are especially grateful to DG Research (Ian Perry, Marianne Paasi) and DG ECFIN (Werner Roeger, Kieran McMorrow, Douglas Koszerek) for their help and advice. Finally, the project also owes much to a number of individuals for advice and support at various stages of the project, including Eric Bartelsman, Erwin Diewert, Mun Ho, Mathilde Mas, Nicholas Oulton and Jack Triplett.

We owe special thanks to Dale Jorgenson from Harvard University, one of the pioneers of the growth accounting method. His unwavering support for the project from the embryonic initialisation phase to completion has been highly motivating and a continuous source of inspiration for the project participants. We are looking forward to continuing our collaboration and extending this type of work to other countries in the world.

Finally, we also would like to thank Rebecca Cooke and Chris Doubleday for excellent work on the final edit of this manuscript.

All viewpoints expressed in this book are those of the authors only, and any remaining errors are our responsibility.