# A VERY BRITISH AFFAIR

SIX BRITONS AND THE DEVELOPMENT OF TIME SERIES ANALYSIS DURING THE 20TH CENTURY

TERENCE C. MILLS



### A Very British Affair

Palgrave Advanced Texts in Econometrics series

Series Editors:

Kerry Patterson, University of Reading, UK Terence C. Mills, Loughborough University, UK

Editorial board:

William Greene, Leonard N. Stern School of Business, USA In Choi, Sogang University, South Korea Niels Haldrup, University of Aarhus, Denmark Tommasso Proietti, University of Rome, Italy

Palgrave Advanced Texts in Econometrics is a series that provides coverage of econometric techniques, applications and perspectives at an advanced research level. It will include research monographs that bring current research to a wide audience; perspectives on econometric themes that develop a long term view of key methodological advances; textbook style presentations of advanced teaching and research topics. An over-riding theme of this series is clear presentation and accessibility through excellence in exposition, so that it will appeal not only to econometricians, but also to professional economists and, particularly, to Ph.D students and MSc students undertaking dissertations. The texts will include developments in theoretical and applied econometrics across a wide range of topics and areas including time series analysis, panel data methods, spatial econometrics and financial econometrics.

Titles include:

Terence C. Mills
THE FOUNDATIONS OF MODERN TIME SERIES ANALYSIS

Terence C. Mills A VERY BRITISH AFFAIR: SIX BRITONS AND THE DEVELOPMENT OF TIME SERIES ANALYSIS DURING THE 20TH CENTURY

#### Palgrave Advanced Texts in Econometrics Series Standing Order ISBN 978-0-230-34818-9

You can receive future titles in this series as they are published by placing a standing order. Please contact your bookseller or, in case of difficulty, write to us at the address below with your name and address, the title of the series and the ISBN quoted above.

Customer Services Department, Macmillan Distribution Ltd, Houndmills, Basingstoke, Hampshire RG21 6XS, England.

## A Very British Affair

### Six Britons and the Development of Time Series Analysis During the Twentieth Century

Terence C. Mills Professor of Applied Statistics and Econometrics, Loughborough University, UK





© Terence C. Mills 2013

All rights reserved. No reproduction, copy or transmission of this publication may be made without written permission.

No portion of this publication may be reproduced, copied or transmitted save with written permission or in accordance with the provisions of the Copyright, Designs and Patents Act 1988, or under the terms of any licence permitting limited copying issued by the Copyright Licensing Agency, Saffron House, 6–10 Kirby Street, London EC1N 8TS.

Any person who does any unauthorized act in relation to this publication may be liable to criminal prosecution and civil claims for damages.

The author has asserted his right to be identified as the author of this work in accordance with the Copyright, Designs and Patents Act 1988.

First published 2013 by PALGRAVE MACMILLAN

Palgrave Macmillan in the UK is an imprint of Macmillan Publishers Limited, registered in England, company number 785998, of Houndmills, Basingstoke, Hampshire RG21 6XS.

Palgrave Macmillan in the US is a division of St Martin's Press LLC, 175 Fifth Avenue, New York, NY 10010.

Palgrave Macmillan is the global academic imprint of the above companies and has companies and representatives throughout the world.

Palgrave® and Macmillan® are registered trademarks in the United States, the United Kingdom, Europe and other countries.

ISBN 978-0-230-36911-5

This book is printed on paper suitable for recycling and made from fully managed and sustained forest sources. Logging, pulping and manufacturing processes are expected to conform to the environmental regulations of the country of origin.

A catalogue record for this book is available from the British Library.

A catalog record for this book is available from the Library of Congress.

10 9 R 5 3 2 1 22 21 20 19 18 17 16 15 14 13

Printed and bound in Great Britain by CPI Antony Rowe, Chippenham and Eastbourne

### Contents

List	of Tables	V
List	of Figures	ix
1	Time Series Analysis and the British	1
2	Yule: The Time–Correlation Problem, Nonsense Correlations, Periodicity and Autoregressions	3
3	Kendall: Generalizations and Extensions of Stationary Autoregressive Models	70
4	Durbin: Inference, Estimation, Seasonal Adjustment and Structural Modelling	109
5	Jenkins: Inference in Autoregressive Models and the Development of Spectral Analysis	140
6	Box and Jenkins: Time Series Analysis, Forecasting and Control	161
7	Box and Jenkins: Modelling Seasonal Time Series and Transfer Function Analysis	216
8	Box and Jenkins: Developments post-1970	240
9	Granger: Spectral Analysis, Causality, Forecasting, Model Interpretation and Non-linearity	288
10	Granger: Long Memory, Fractional Differencing, Spurious Regressions and Co-integration	343
11	The End of the Affair?	394
Not	Notes	
Refe	References	
Index		428