# ADVANCES IN BUSINESS AND MANAGEMENT FORECASTING

# ADVANCES IN BUSINESS AND MANAGEMENT FORECASTING

Series Editors: Kenneth D. Lawrence and Ronald K. Klimberg

### Recent Volumes:

Volume 1:	Advances in Business and Management Forecasting: Forecasting Sales
Volume 2:	Advances in Business and Management Forecasting
Volume 3:	Advances in Business and Management Forecasting
Volume 4:	Advances in Business and Management Forecasting
Volume 5:	Advances in Business and Management Forecasting
Volume 6:	Advances in Business and Management Forecasting
Volume 7:	Advances in Business and Management Forecasting
Volume 8:	Advances in Business and Management Forecasting
Volume 9:	Advances in Business and Management Forecasting
Volume 10:	Advances in Business and Management Forecasting
Volume 11:	Advances in Business and Management Forecasting

Volume 12: Advances in Business and Management Forecasting

# ADVANCES IN BUSINESS AND MANAGEMENT FORECASTING VOLUME 13

# ADVANCES IN BUSINESS AND MANAGEMENT FORECASTING

#### **EDITED BY**

# KENNETH D. LAWRENCE

New Jersey Institute of Technology, Newark, NJ, USA

## RONALD K. KLIMBERG

Saint Joseph's University, Philadelphia, PA, USA



United Kingdom – North America – Japan India – Malaysia – China Emerald Publishing Limited Howard House, Wagon Lane, Bingley BD16 1WA, UK

First edition 2019

Copyright © 2019 Emerald Publishing Limited

#### Reprints and permissions service

Contact: permissions@emeraldinsight.com

No part of this book may be reproduced, stored in a retrieval system, transmitted in any form or by any means electronic, mechanical, photocopying, recording or otherwise without either the prior written permission of the publisher or a licence permitting restricted copying issued in the UK by The Copyright Licensing Agency and in the USA by The Copyright Clearance Center. Any opinions expressed in the chapters are those of the authors. Whilst Emerald makes every effort to ensure the quality and accuracy of its content, Emerald makes no representation implied or otherwise, as to the chapters' suitability and application and disclaims any warranties, express or implied, to their use.

#### **British Library Cataloguing in Publication Data**

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

ISBN: 978-1-78754-290-7 (Print) ISBN: 978-1-78754-289-1 (Online) ISBN: 978-1-78754-291-4 (Epub)

ISSN: 1477-4070 (Series)



ISOQAR certified Management System, awarded to Emerald for adherence to Environmental standard ISO 14001:2004.

Certificate Number 1985 ISO 14001



# **CONTENTS**

List of Contributors	vii
Editorial Advisory Board	ix
SECTION A MARKETING, SALES, AND SERVICE FORECASTIN	G
Exploring the Suitability of Support Vector Regression and Radial Basis Function Approximation to Forecast Sales of Fortune 500 Companies	
Vivian M. Evangelista and Rommel G. Regis	3
Buy-online-and-pick-up-in-store Strategy and Showroom Strategy in the Omnichannel Retailing	
Feng Yang, Xue Li and Zhimin Huang	25
Service Contracts for Delays in Delivery Amitava Mitra	51
SECTION B ECONOMIC, FINANCIAL, AND INSURANCE FORECAS	TING
Growth, Business Cycles, and the Great Recession: Comparing State and County Unemployment Costs Per Capita for North Carolina	
Christopher Keller and James Kleckley	67
Dimension Reduction in Bankruptcy Prediction: A Case Study of North American Companies	
Son Nguyen, Edward Golas, William Żywiak and Kristin Kennedy	83
Detecting Non-injured Passengers and Drivers in Car Accidents: A New Under-resampling Method for	
Imbalanced Classification Son Nguyen, Gao Niu, John Quinn, Alan Olinsky, Jonathan Ormsbee, Richard M. Smith and James Bishop	93

vi CONTENTS

SECTION C CEO COMPENSATION AND OPERATIONS FORECASTING Regression Modeling of the Peer Group of Verizon Corporation for the CEO of Verizon		
Regression Modeling Based on a Peer Group for the Executive Compensation of AT&T CEO		
Ronald K. Klimberg, Kenneth D. Lawrence and Sheila M. Lawrence	115	
Agent-based Queuing Model for Call Center Forecasting and Management Optimization		
Gao Niu, Jeyaraj Vadiveloo and Mengnong Xu	121	
Index	135	

# LIST OF CONTRIBUTORS

James Bishop Amica Insurance, USA

Vivian M. Evangelista Saint Joseph's University, USA

Edward Golas Bryant University, USA

Zhimin Huang Adelphi University, USA

Christopher Keller East Carolina University, USA

Kristin Kennedy Bryant University, USA

James Kleckley East Carolina University, USA
Ronald K. Klimberg Saint Joseph's University, USA

Kenneth D. Lawrence New Jersey Institute of Technology, USA

Sheila M. Lawrence Rutgers, The State University of

New Jersey, USA

Xue Li University of Science and Technology of

China, China

Amitava MitraAuburn University, USASon NguyenBryant University, USAGao NiuBryant University, USAAlan OlinskyBryant University, USAJonathan OrmsbeeBryant University, USA

Dinesh R. Pai The Pennsylvania State University, USA

John Quinn Bryant University, USA

Rommel G. Regis Saint Joseph's University, USA

Richard M. Smith Bryant University, USA

Jeyaraj Vadiveloo University of Connecticut, USA

Mengnong Xu Travelers Insurance, USA

Feng Yang University of Science and Technology of

China, China

William Zywiak Bryant University, USA

## EDITORIAL ADVISORY BOARD

#### **EDITORS-IN-CHIEF**

Kenneth D. Lawrence New Jersey Institute of Technology

Ronald K. Klimberg Saint Joseph's University

### **SENIOR EDITORS**

Patrick Hester John J. Kros

Old Dominion University East Carolina University

Virginia Miori William Steward

Saint Joseph's University College of William and Mary

Zhimin Huang Stephen Kudbya

Adelphi University New Jersey Institute of Technology

Daniel O'Leary Frenck Waage

University of Southern California University of Massachusetts

Douglas Jones Sheila M. Lawrence

Rutgers University Rutgers, The State University of New

Jersey

The Pennsylvania David J. Weiss

Dinesh R. Pai

State University Rutgers, The State University of

New Jersey