

ROUTLEDGE ADVANCES IN SOCIOLOGY

Sociology of Economic Innovation

Francesco Ramella



ROUTLEDGE



Sociology of Economic Innovation

Francesco Ramella

First published 2016
by Routledge
2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

and by Routledge
711 Third Avenue, New York, NY 10017

Routledge is an imprint of the Taylor & Francis Group, an informa business

© 2016 Francesco Ramella

The right of Francesco Ramella to be identified as author of this work has been asserted by him in accordance with sections 77 and 78 of the Copyright, Designs and Patents Act 1988.

All rights reserved. No part of this book may be reprinted or reproduced or utilised in any form or by any electronic, mechanical, or other means, now known or hereafter invented, including photocopying and recording, or in any information storage or retrieval system, without permission in writing from the publishers.

Trademark notice: Product or corporate names may be trademarks or registered trademarks, and are used only for identification and explanation without intent to infringe.

British Library Cataloguing in Publication Data

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

Library of Congress Cataloging in Publication Data

Ramella, Francesco.

Sociology of economic innovation / Francesco Ramella.

pages cm. – (Routledge advances in sociology ; 154)

1. Technological innovations–Social aspects. 2. Economics–

Sociological aspects. I. Title.

HC79.T4R357 2015

306.3–dc23

2015005340

ISBN: 978-1-138-80373-2 (hbk)

ISBN: 978-1-315-75352-2 (ebk)

Typeset in Times New Roman
by Wearset Ltd, Boldon, Tyne and Wear



Printed and bound in Great Britain by
TJ International Ltd, Padstow, Cornwall

Sociology of Economic Innovation

This is the first comprehensive work on the sociology of innovation. It's an original contribution that shows the importance of social relations in the process of invention and innovation. Ramella provides an extremely useful tool for students and scholars from other disciplines that are interested in the sociological view of innovation.

Professor Carlo Trigilia, *University of Florence, Italy*

Francesco Ramella's book is an important and original contribution which helps to clarify how innovation emerges, pointing to its social and territorial embeddedness.

Professor Arnaldo Bagnasco, *University of Turin, Italy*

Sociology of Economic Innovation by Francesco Ramella offers a timely and innovative account of how economic innovation takes place. It shows what sociological analysis at its best can do when applied to understanding economic phenomena, while at the same time relying on an impressive amount of work from other disciplines. The analysis of the actors of innovation, of their relations and of the contexts in which they operate is supported by robust theoretical and conceptual frameworks and represents a very important contribution to our understanding of this key phenomenon. Ramella's book lucidly and insightfully fills in a longstanding gap in our knowledge of economic innovation and promises to change our thinking about it, thus renewing the best tradition of the 'Italian school' of economic sociology. It will be of great interest to social scientists as well as to students and policy-makers.

Professor Marino Regini, *University of Milan, Italy*

This book offers a sociological overview of the theories and research on economic innovation. Over the past few decades, the economics of innovation has given rise to a lively flow of studies, and Innovation Studies continues to develop as an interdisciplinary field of research. Sociology in general, and economic sociology in particular, have already made a significant contribution to innovation and continue to play a crucial role in this emerging field.

This book presents an integrated sociological approach to the study of economic innovation. It explores the key theories and sociological research on innovation, as well as other contributions to the field of Innovation Studies from economists, geographers and psychologists. Ramella argues that in order to understand the processes of innovation, it is necessary to look at the *actors* of innovation, at the *relations* that exist between them, and at the sectoral and territorial *contexts* in which they operate. For students, this book includes international case studies throughout, as well as further study questions at the end of each chapter.

Francesco Ramella is Professor of Economic Sociology at the University of Torino, Italy.

Routledge Advances in Sociology

- 1 Virtual Globalization**
Virtual Spaces/Tourist Spaces
Edited by David Holmes
- 2 The Criminal Spectre in Law, Literature and Aesthetics**
Peter Hutchings
- 3 Immigrants and National Identity in Europe**
Anna Triandafyllidou
- 4 Constructing Risk and Safety in Technological Practice**
Edited by Jane Summerton and Boel Berner
- 5 Europeanisation, National Identities and Migration**
Changes in Boundary
Constructions Between Western and Eastern Europe
Willfried Spohn and Anna Triandafyllidou
- 6 Language, Identity and Conflict**
A Comparative Study of Language in Ethnic Conflict in Europe and Eurasia
Diarmait Mac Giolla Chríost
- 7 Immigrant Life in the U.S. Multi-disciplinary Perspectives**
Edited by Donna R. Gabaccia and Colin Wayne Leach
- 8 Rave Culture and Religion**
Edited by Graham St. John
- 9 Creation and Returns of Social Capital**
A New Research Program
Edited by Henk Flap and Beate Völker
- 10 Self-Care**
Embodiment, Personal Autonomy and the Shaping of Health Consciousness
Christopher Ziguras
- 11 Mechanisms of Cooperation**
Werner Raub and Jeroen Weesie
- 12 After the Bell**
Educational Success, Public Policy and Family Background
Edited by Dalton Conley and Karen Albright
- 13 Youth Crime and Youth Culture in the Inner City**
Bill Sanders

- 14 **Emotions and Social Movements**
Edited by Helena Flam and Debra King
- 15 **Globalization, Uncertainty and Youth in Society**
Edited by Hans-Peter Blossfeld, Erik Klijzing, Melinda Mills and Karin Kurz
- 16 **Love, Heterosexuality and Society**
Paul Johnson
- 17 **Agricultural Governance**
Globalization and the New Politics of Regulation
Edited by Vaughan Higgins and Geoffrey Lawrence
- 18 **Challenging Hegemonic Masculinity**
Richard Howson
- 19 **Social Isolation in Modern Society**
Roelof Hortulanus, Anja Machielse and Ludwien Meeuwesen
- 20 **Weber and the Persistence of Religion**
Social Theory, Capitalism and the Sublime
Joseph W. H. Lough
- 21 **Globalization, Uncertainty and Late Careers in Society**
Edited by Hans-Peter Blossfeld, Sandra Buchholz and Dirk Hofäcker
- 22 **Bourdieu's Politics**
Problems and Possibilities
Jeremy F. Lane
- 23 **Media Bias in Reporting Social Research?**
The Case of Reviewing Ethnic Inequalities in Education
Martyn Hammersley
- 24 **A General Theory of Emotions and Social Life**
Warren D. TenHouten
- 25 **Sociology, Religion and Grace**
Arpad Szakolczai
- 26 **Youth Cultures**
Scenes, Subcultures and Tribes
Edited by Paul Hodgkinson and Wolfgang Deicke
- 27 **The Obituary as Collective Memory**
Bridget Fowler
- 28 **Tocqueville's Virus**
Utopia and Dystopia in Western Social and Political Thought
Mark Featherstone
- 29 **Jewish Eating and Identity Through the Ages**
David Kraemer
- 30 **The Institutionalization of Social Welfare**
A Study of Medicalizing Management
Mikael Holmqvist
- 31 **The Role of Religion in Modern Societies**
Edited by Detlef Pollack and Daniel V. A. Olson
- 32 **Sex Research and Sex Therapy**
A Sociological Analysis of Masters and Johnson
Ross Morrow

- 33 A Crisis of Waste?**
Understanding the Rubbish Society
Martin O'Brien
- 34 Globalization and Transformations of Local Socioeconomic Practices**
Edited by Ulrike Schuerkens
- 35 The Culture of Welfare Markets**
The International Recasting of Pension and Care Systems
Ingo Bode
- 36 Cohabitation, Family and Society**
Tiziana Nazio
- 37 Latin America and Contemporary Modernity**
A Sociological Interpretation
José Maurício Domingues
- 38 Exploring the Networked Worlds of Popular Music**
Milieu Cultures
Peter Webb
- 39 The Cultural Significance of the Child Star**
Jane O'Connor
- 40 European Integration as an Elite Process**
The Failure of a Dream?
Max Haller
- 41 Queer Political Performance and Protest**
Benjamin Shepard
- 42 Cosmopolitan Spaces**
Europe, Globalization, Theory
Chris Rumford
- 43 Contexts of Social Capital**
Social Networks in Communities, Markets and Organizations
Edited by Ray-May Hsung, Nan Lin and Ronald Breiger
- 44 Feminism, Domesticity and Popular Culture**
Edited by Stacy Gillis and Joanne Hollows
- 45 Changing Relationships**
Edited by Malcolm Brynin and John Ermisch
- 46 Formal and Informal Work**
The Hidden Work Regime in Europe
Edited by Birgit Pfau-Effinger, Lluís Flaquer and Per H. Jensen
- 47 Interpreting Human Rights**
Social Science Perspectives
Edited by Rhiannon Morgan and Bryan S. Turner
- 48 Club Cultures**
Boundaries, Identities and Otherness
Silvia Rief
- 49 Eastern European Immigrant Families**
Mihaela Robila
- 50 People and Societies**
Rom Harré and Designing the Social Sciences
Luk van Langenhove
- 51 Legislating Creativity**
The Intersections of Art and Politics
Dustin Kidd

- 52 **Youth in Contemporary Europe**
Edited by Jeremy Leaman and Martha Wörsching
- 53 **Globalization and Transformations of Social Inequality**
Edited by Ulrike Schuerkens
- 54 **Twentieth Century Music and the Question of Modernity**
Eduardo De La Fuente
- 55 **The American Surfer**
Radical Culture and Capitalism
Kristin Lawler
- 56 **Religion and Social Problems**
Edited by Titus Hjelm
- 57 **Play, Creativity, and Social Movements**
If I Can't Dance, It's Not My Revolution
Benjamin Shepard
- 58 **Undocumented Workers' Transitions**
Legal Status, Migration, and Work in Europe
Sonia McKay, Eugenia Markova and Anna Paraskevopoulou
- 59 **The Marketing of War in the Age of Neo-Militarism**
Edited by Kostas Gouliamos and Christos Kassimeris
- 60 **Neoliberalism and the Global Restructuring of Knowledge and Education**
Steven C. Ward
- 61 **Social Theory in Contemporary Asia**
Ann Brooks
- 62 **Foundations of Critical Media and Information Studies**
Christian Fuchs
- 63 **A Companion to Life Course Studies**
The social and historical context of the British birth cohort studies
Michael Wadsworth and John Bynner
- 64 **Understanding Russianness**
Risto Alapuro, Arto Mustajoki and Pekka Pesonen
- 65 **Understanding Religious Ritual**
Theoretical approaches and innovations
John Hoffmann
- 66 **Online Gaming in Context**
The social and cultural significance of online games
Garry Crawford, Victoria K. Gosling and Ben Light
- 67 **Contested Citizenship in East Asia**
Developmental politics, national unity, and globalization
Kyung-Sup Chang and Bryan S. Turner
- 68 **Agency without Actors?**
New Approaches to Collective Action
Edited by Jan-Hendrik Passoth, Birgit Peuker and Michael Schillmeier
- 69 **The Neighborhood in the Internet**
Design Research Projects in Community Informatics
John M. Carroll

- 70 Managing Overflow in Affluent Societies**
Edited by Barbara Czarniawska and Orvar Löfgren
- 71 Refugee Women**
Beyond Gender versus Culture
Leah Bassel
- 72 Socioeconomic Outcomes of the Global Financial Crisis**
Theoretical Discussion and Empirical Case Studies
Edited by Ulrike Schuerkens
- 73 Migration in the 21st Century**
Political Economy and Ethnography
Edited by Pauline Gardiner Barber and Winnie Lem
- 74 Ulrich Beck**
An Introduction to the Theory of Second Modernity and the Risk Society
Mads P. Sørensen and Allan Christiansen
- 75 The International Recording Industries**
Edited by Lee Marshall
- 76 Ethnographic Research in the Construction Industry**
Edited by Sarah Pink, Dylan Tutt and Andrew Dainty
- 77 Routledge Companion to Contemporary Japanese Social Theory**
From Individualization to Globalization in Japan Today
Edited by Anthony Elliott, Masataka Katagiri and Atsushi Sawai
- 78 Immigrant Adaptation in Multi-Ethnic Societies**
Canada, Taiwan, and the United States
Edited by Eric Fong, Lan-Hung Nora Chiang and Nancy Denton
- 79 Cultural Capital, Identity, and Social Mobility**
The Life Course of Working-Class University Graduates
Mick Matthys
- 80 Speaking for Animals**
Animal Autobiographical Writing
Edited by Margo DeMello
- 81 Healthy Aging in Sociocultural Context**
Edited by Andrew E. Scharlach and Kazumi Hoshino
- 82 Touring Poverty**
Bianca Freire-Medeiros
- 83 Life Course Perspectives on Military Service**
Edited by Janet M. Wilmoth and Andrew S. London
- 84 Innovation in Socio-Cultural Context**
Edited by Frane Adam and Hans Westlund
- 85 Youth, Arts and Education**
Reassembling Subjectivity through Affect
Anna Hickey-Moody
- 86 The Capitalist Personality**
Face-to-Face Sociality and Economic Change in the Post-Communist World
Christopher S. Swader

- 87 **The Culture of Enterprise in Neoliberalism**
Specters of Entrepreneurship
Tomas Marttila
- 88 **Islamophobia in the West**
Measuring and Explaining Individual Attitudes
Marc Helbling
- 89 **The Challenges of Being a Rural Gay Man**
Coping with Stigma
Deborah Bray Preston and Anthony R. D'Augelli
- 90 **Global Justice Activism and Policy Reform in Europe**
Understanding When Change Happens
Edited by Peter Utting, Mario Pianta and Anne Ellersiek
- 91 **Sociology of the Visual Sphere**
Edited by Regev Nathansohn and Dennis Zuev
- 92 **Solidarity in Individualized Societies**
Recognition, Justice and Good Judgement
Søren Juul
- 93 **Heritage in the Digital Era**
Cinematic Tourism and the Activist Cause
Rodanthi Tzanelli
- 94 **Generation, Discourse, and Social Change**
Karen R. Foster
- 95 **Sustainable Practices**
Social Theory and Climate Change
Elizabeth Shove and Nicola Spurling
- 96 **The Transformative Capacity of New Technologies**
A Theory of Sociotechnical Change
Ulrich Dolata
- 97 **Consuming Families**
Buying, Making, Producing Family Life in the 21st Century
Jo Lindsay and JaneMaree Maher
- 98 **Migrant Marginality**
A Transnational Perspective
Edited by Philip Kretsedemas, Jorge Capetillo-Ponce and Glenn Jacobs
- 99 **Changing Gay Male Identities**
Andrew Cooper
- 100 **Perspectives on Genetic Discrimination**
Thomas Lemke
- 101 **Social Sustainability**
A Multilevel Approach to Social Inclusion
Edited by Veronica Dujon, Jesse Dillard and Eileen M. Brennan
- 102 **Capitalism**
A Companion to Marx's Economy Critique
Johan Fornäs
- 103 **Understanding European Movements**
New Social Movements, Global Justice Struggles, Anti-Austerity Protest
Edited by Cristina Flesher Fominaya and Laurence Cox

- 104 **Applying Ibn Khaldūn**
The Recovery of a Lost Tradition
in Sociology
Syed Farid Alatas
- 105 **Children in Crisis**
Ethnographic Studies in
International Contexts
*Edited by Manata Hashemi and
Martín Sánchez-Jankowski*
- 106 **The Digital Divide**
The internet and social inequality
in international perspective
*Edited by Massimo Ragnedda
and Glenn W. Muschert*
- 107 **Emotion and Social Structures**
The Affective Foundations of
Social Order
Christian von Scheve
- 108 **Social Capital and Its
Institutional Contingency**
A Study of the United States,
China and Taiwan
*Edited by Nan Lin, Yang-chih Fu
and Chih-jou Jay Chen*
- 109 **The Longings and Limits of
Global Citizenship Education**
The Moral Pedagogy of
Schooling in a Cosmopolitan Age
Jeffrey S. Dill
- 110 **Irish Insanity 1800–2000**
Damien Brennan
- 111 **Cities of Culture**
A Global Perspective
Deborah Stevenson
- 112 **Racism, Governance, and
Public Policy**
Beyond Human Rights
Katy Sian, Ian Law and S. Sayyid
- 113 **Understanding Aging and
Diversity**
Theories and Concepts
Patricia Kolb
- 114 **Hybrid Media Culture**
Sensing Place in a World of Flows
Edited by Simon Lindgren
- 115 **Centers and Peripheries in
Knowledge Production**
Leandro Rodríguez Medina
- 116 **Revisiting Institutionalism in
Sociology**
Putting the ‘Institution’ Back in
Institutional Analysis
Seth Abrutyn
- 117 **National Policy-Making**
Domestication of Global Trends
Pertti Alasuutari and Ali Qadir
- 118 **The Meanings of Europe**
Changes and Exchanges of a
Contested Concept
*Edited by Claudia Wiesner and
Meike Schmidt-Gleim*
- 119 **Between Islam and the
American Dream**
An Immigrant Muslim
Community in Post-9/11
America
Yuting Wang
- 120 **Call Centers and the Global
Division of Labor**
A Political Economy of Post-
Industrial Employment and
Union Organizing
Andrew J.R. Stevens
- 121 **Academic Capitalism**
Universities in the Global
Struggle for Excellence
Richard Münch

- 122 Deconstructing Flexicurity and Developing Alternative Approaches**
Towards New Concepts and Approaches for Employment and Social Policy
Edited by Maarten Keune and Amparo Serrano
- 123 From Corporate to Social Media**
Critical Perspectives on Corporate Social Responsibility in Media and Communication Industries
Marisol Sandoval
- 124 Vision and Society**
Towards a Sociology and Anthropology from Art
John Clammer
- 125 The Rise of Critical Animal Studies**
From the Margins to the Centre
Nik Taylor and Richard Twine
- 126 Atoms, Bytes and Genes**
Public Resistance and Techno-Scientific Responses
Martin W. Bauer
- 127 Punk Rock and the Politics of Place**
Building a Better Tomorrow
Jeffrey S. Debies-Carl
- 128 Bourdieu's Theory of Social Fields**
Concepts and Applications
Mathieu Hilgers and Eric Mangez
- 129 Global Management, Local Resistances**
Theoretical Discussion and Empirical Case Studies
Edited by Ulrike Schuerkens
- 130 Migrant Professionals in the City**
Local Encounters, Identities and Inequalities
Edited by Lars Meier
- 131 From Globalization to World Society**
Neo-Institutional and Systems-Theoretical Perspectives
Edited by Boris Holzer, Fatima Kastner and Tobias Werron
- 132 Political Inequality in an Age of Democracy**
Cross-national Perspectives
Joshua Kjerulf Dubrow
- 133 Social Networks and Music Worlds**
Edited by Nick Crossley, Siobhan McAndrew and Paul Widdop
- 134 Gender Roles in Ireland**
Three Decades of Attitude Change
Margret Fine-Davis
- 135 (Sub) Urban Sexscapes**
Geographies and Regulation of the Sex Industry
Edited by Paul Maginn and Christine Steinmetz
- 136 Advances in Biographical Methods**
Creative Applications
Edited by Maggie O'Neill, Brian Roberts and Andrew Sparkes

- 137 Social Cohesion and Immigration in Europe and North America**
Mechanisms, Conditions and Causality
Edited by Ruud Koopmans, Bram Lancee and Merlin Schaeffer
- 138 Digital Publics**
Cultural Political Economy, Financialization and Creative Organizational Politics
John Michael Roberts
- 139 Ideology and the Fight Against Human Trafficking**
Reyhan Atasü-Topcuoğlu
- 140 Rethinking Serial Murder, Spree Killing, and Atrocities**
Beyond the Usual Distinctions
Robert Shanafelt and Nathan W. Pino
- 141 The Re-Use of Urban Ruins**
Atmospheric Inquiries of the City
Hanna Katharina Göbel
- 142 Reproductive Tourism in the United States**
Creating Family in the Mother Country
Lauren Jade Martin
- 143 The Bohemian Ethos**
Questioning Work and Making a Scene on the Lower East Side
Judith R. Halasz
- 144 Critical Theory and Social Media**
Between Emancipation and Commodification
Thomas Allmer
- 145 Socio-Cultural Mobility and Mega-Events**
Ethics and Aesthetics in Brazil's 2014 World Cup
Rodanthi Tzanelli
- 146 Seeing Religion**
Toward a Visual Sociology of Religion
Edited by Roman Williams
- 147 European Citizenship and Social Integration in the EU**
Jürgen Gerhards and Holger Lengfeld
- 148 International Migration and Ethnic Relations**
Critical Perspectives
Edited by Magnus Dahlstedt and Anders Neergaard
- 149 Stigma and the Shaping of the Pornography Industry**
Georgina Voss
- 150 Religious Identity and Social Change**
Explaining Christian conversion in a Muslim world
David Radford
- 151 God, Politics, Economy**
Social Theory and the Paradoxes of Religion
Bülent Diken
- 152 Lifestyles and Subcultures**
History and a New Perspective
Luigi Berzano and Carlo Genova
- 153 Comedy and Social Science**
Towards a Methodology of Funny
Cate Watson
- 154 Sociology of Economic Innovation**
Francesco Ramella

Figures

1.1	Structural holes and relational brokerage	53
1.2	The process of innovation diffusion: the S-curve of the adoption rate	54
2.1	Systemic approach to creativity	80
4.1	The Travers and Milgram small-world experiment	118
4.2	Small-world networks	123
5.1	The national innovation system: a schematic representation	149
5.2	Share of federal public, non-federal and defence program expenditure in total US R&D funding	154
5.3	Models of relations between universities, industry and government	166
5.4	The triple helix	167
6.1	The Regional Innovation System	188
7.1	Territorial networks of inventors	212

Tables

3.1	Technology in various economic systems	88
4.1	Empirical examples of small-world networks	126
6.1	Three systems of innovation governance	189
6.2	Regional innovation systems: a taxonomy	192

Acknowledgements

This book was first published in Italian under the name *Sociologia dell'innovazione economica* by Il Mulino, in 2013. This Routledge edition, translated by Stuart James Wilson in 2014–15, is an updated version of the Italian book.

Many of the ideas contained in this book were developed in the course of research carried out together with Carlo Trigilia, which prompted me to reflect on the theme of innovation in a more systematic manner. My warm thanks go out to him for this. I am also extremely grateful to Jan Fagerberg and Ben Martin for providing me with some of the data and information from their studies.

This book is dedicated to Anna: neither it, nor many other things, would have been possible without her support.

Contents

<i>List of figures</i>	xv
<i>List of tables</i>	xvi
<i>Acknowledgements</i>	xvii

Introduction: Innovation Studies 1

1.1 A field of interdisciplinary research 1

1.2 The contribution of sociology 3

1.3 A first definition 6

1.4 Economic innovation 10

1 Innovation and social change 16

1.1 Capitalism, society and innovation 16

1.2 Adam Smith and the division of labour 17

1.3 Between conflict and consensus: Marx and Durkheim 20

1.4 The innov-actors: Simmel, Sombart and Weber 27

1.5 Schumpeter and the economy of innovation 34

1.6 Models of capitalism 38

1.7 Innovative networks 49

1.8 The economic sociology of innovation 55

2 Inventors and creativity 62

2.1 Genius or puppet? 62

2.2 On the shoulders of giants 64

2.3 The 'discovery' of inventors 65

2.4 The psychology of creativity 75

3 The sociology of economic inventions 86

3.1 Sombart, Tarde, Ogburn: 100,000 inventors, one, or none? 86

3.2 The creative class 94

3.3 Better alone or in good company? 96