

Celebrating a 'renaissance' economist

James Alleman (University of Colorado, Boulder), Paul Rappoport (Temple University, Philadelphia) and Mohsen Hamoudia (Orange, Paris) have edited a Festschrift in honor of Gary Madden.

Professor Gary Madden was a "renaissance" economist. He worked in the areas of applied microeconomics, econometrics, forecasting and policy research, primarily in the Information and Communications Technology (ICT) sector. Gary's primary research area concerned the economic modelling of digital networks. Within this gambit, Gary's particular research fields encompass the economic impacts of disruptive technology such as 3G-4G mobile (including analysis of spectrum assignment mode) and fixed-line broadband, network externalities, blended competition and the internet, emerging technology forecasting, and welfare and technology-led economic growth (including digital divide issues). He was a true collaborator, and had an endless drive to push the boundaries of research.

The essays in this Festschrift are based on his wide-ranging research by his friends and colleagues and, in two cases, articles he was working on prior to his untimely death. The contributors took up several themes on which Gary had worked for several years, updating them with new developments and applications.

The Festschrift has been endorsed by many of Gary's colleagues coming from across academia and business. One of them wrote about Gary and his work: *"Professor Gary Madden was one of the major scholars in ICT economics. His deep knowledge of theory and methods allowed him to tackle a broad set of domains and problems. Those who knew him could only admire his productivity and commitment. The articles in this book reflect not only his extensive network of close colleagues but also the scope and nature of his scientific interests. If possible, professor Madden would certainly have continued his research on many highly relevant topics covered in this book such as ICT vs. GDP, adoption of e-commerce, two-sided platforms, regulation of Internet giants, and network neutrality"*.

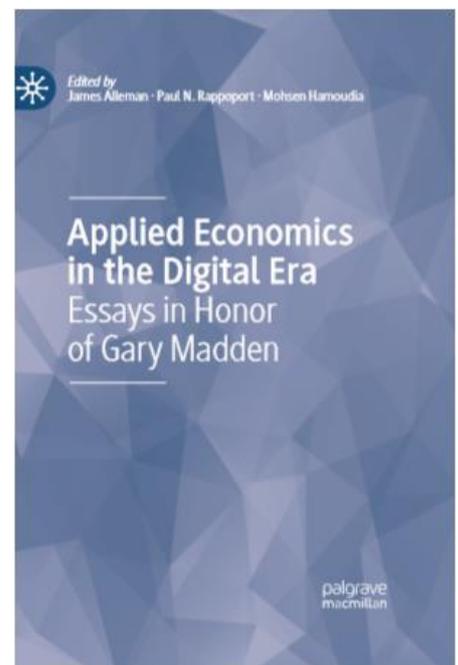
Another one wrote: *"Gary Madden's interests ranged widely across the fast developing world of ICT economics. This book of essays, in recognition of his contributions, by some of the leading scholars in the area captures the breadth and depth of current research with papers discussing both regulatory issues as they apply to the internet, and the adoption of new technologies but also analysis of the fast developing world of on-line activity. All scholars in the area will find something new and interesting whilst the book also offers those carrying out practical research a broad view of research methods and perspectives in applied econometrics and forecasting"*.

The Festschrift, which is composed of three parts, will provide inspiration to readers, encouraging them to broaden their depth in the field, discover unique techniques and to share ideas. It will, in general, provide inspiration to new researchers.

In "Civilizations' Economic Drivers: Babylon to Bitstream" Gerald Faulhaber provides a broad overview of how we have reached the digital age and its implications.

The applied econometric part of the book brings together the latest research in the area. There are three chapters in this part of the book:

- Lester Taylor illustrates in his chapter "A Different Approach to Deriving Price and Income Elasticities: Applications to Telecommunications and Gasoline & Motor Oil" how own-price, cross-price and income elasticities can be calculated from survey data and translated into real income effects, which in turn allows for straightforward separation of income and substitution effects.



- In their chapter “A Cross-Country Analysis of ICT Diffusion, Economic Growth and Global Competitiveness”, Aniruddha Banerjee, Paul Rappoport and James Alleman, explore the causal relationships between (ICT) and economic growth over the post-Great Recession period of 2008-2017. They apply the Generalized Method of Moments estimation approach to a dynamic panel of 107 countries to examine causality between ICT measures and economic growth.
- E-commerce within Spain is explored in the chapter by Ángel Valarezo, Rafael López and Teodosio Pérez-Amaral, show that it is an indicator of the digital-divide, having negative effects in terms of untapped opportunities for people, companies and the whole economy. They conducted an empirical analysis using a standard neoclassical utility maximization framework. They find that e-commerce adoption is positively related with being male, having higher levels of education, income and digital skills, being Spanish, and being employed; while being female, older and belonging to a household of two or more members have negative effects

The forecasting part of the book ranges from Machine Learning and Forecasting to broadband’s impact on economic growth. There are five chapters in this part of the book:

- When investigating whether predictions of future economic growth can be improved by using standard measures of broadband infrastructure in their paper, “Predictive Accuracy Tests for Prediction of Economic Growth based on Broadband Infrastructure”, Walter Mayer, Gary Madden and Xin Dang show that it is evident that measures of broadband infrastructure can improve predictions of GDP growth after controlling for standard growth determinants.
- In “Modelling internet Diffusion across Tourism Sectors”, Miriam Scaglione and Jamie Murphy investigate how the Bass model parameters of innovation (p) and imitation (q) help explain adoption of the Internet in five tourism sectors, and how the ratio of these parameters sheds insights on the formation of a critical mass.
- In “Exploring Drivers of Online Political Participation in the European Union”, Maria Rosalía Vicente and Hiroaki Suenaga investigate the drivers of citizens’ online political activities from an integrated resources approach which accounts for the effects of both traditional political participation-related resources and three types of online-specific resources. Their analysis shows that digital skills and online networks positively impact participation in three online political activities, namely, sending emails to political representatives, joining online consultations, and reading policy documents online.
- In his chapter “Machine Learning and Forecasting: A Review”, Petrus P. Potgieter aims to stimulate scholarly dialogue of the role of machine learning in forecasting. The chapter critically considers the successes of machine learning in forecasting, using some case studies as well as theoretical considerations, including limitations on machine learning and other techniques for forecasting.
- A key aspect in the design of stated preference (SP) surveys is the determination of the matrix of attributes. Traditionally, practitioners have used orthogonal and similar methods to optimize these design matrices in linear and nonlinear settings. Christopher Dippon and Gary Madden show in their chapter “Stated Consumer Behaviour with D-Efficient Choice Set Designs. The Case of Mobile Service Bundles” that recent research has raised several concerns as to whether these methods produce optimal forecasts for nonlinear models. Thus, they have developed a different method known as efficient or optimal design. They applied D-efficient design to a nonlinear model and developed a test to measure if, and under what circumstances, D-optimization promises more accurate forecasts than traditional methods.

The last part of the Festschrift covers aspects of governance and regulation of the ICT sector.

- Christiaan Hogendorn conducts an analysis of a platform where all component developers produce two kinds of quality – inside quality for their offerings on the platform and outside quality on their outside project. In this chapter “Platforms with Restrictive Licensing” his analysis shows that there are cases where restrictive licensing agreements that shut down the outside projects can increase social welfare, while in other cases they reduce social welfare. The reason is that if consumers and the platform value components inside quality enough, all agents prefer to be protected from low-quality behaviour, even at the cost of giving up outside projects.
- In their chapter, “QoS investment, Vertical Integration and Regulation of the Internet”, Edmond Baranes and Cuong Hung Vuong provide a simple theoretical framework to analyse optimal provision of quality-of-service of the internet by a monopolistic internet service provider (ISP) in the presence of vertical integration. They also identify a market configuration in which non-discriminatory quality regulation might be welfare improving.
- In his chapter “Operations of Internet Platform Intermediaries”, Rob Frieden identifies defects in the ways most governments currently respond to allegations of harm to consumers and competition from internet giants such as Google, Facebook, Amazon, etc. He analyses a recent Supreme Court case that endorses an analysis of both downstream and upstream market impacts. The chapter recommends that courts and government agencies should address marketplace distortions by recalibrating existing tools to examine the competitive and consumer impacts on both sides of an intermediary’s platform.
- In the U.S., network neutrality policy has been on a trajectory of escalating political instability since the early 2000s. Barbara Cherry has conducted in her chapter, “Escalating Instability of Network Neutrality Policy in the US,” an analysis that explains how this trajectory can be understood as a microcosm of the more general trajectory of political dysfunction under U.S. governance that coincides with the era of deregulatory policymaking.
- James Alleman, Edmond Baranes and Paul Rappoport address the monopolistic aspect of the Internet giants in their chapter, “Multisided Markets and Platform Dominance.” As the monopoly pricing is not well defined in multisided markets, they analyse the non-transactional multisided markets for their ability to create consumers’ harm.

The broad range of the topics addressed in the chapters of this book reflect the breadth of Gary’s scholarship over the years and are a fitting tribute to his legacy. The book is published by Palgrave, and can be found on the Palgrave website [here](#).

Mohsen Hamoudia,

Head of Strategy and Business Intelligence, Orange, Paris, France