Appendix
The Contribution of Lester D. Taylor Using Bibliometrics

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It is common practice that a Festschrift lauds the accomplishments of the individual being honored. Indeed, the intent of this paper is no different. This is accomplished by using a bibliometric approach. Not only are publications and citations counted, as is the tradition in the sciences, but Professor Taylor’s contributions are traced to the knowledge base in consumer demand and telecommunications demand in greater depth. To do so, data are extracted from the Institute for Scientific Information’s (ISI’s) Web of Knowledge, now Thomson Reuters Web of Science (WoS), still commonly referred to as ISI, and Google Scholar\(^1\) and use the visual processor SmartDraw\(^2\) to conduct a geospatial analysis of Taylor’s contributions in the areas of telecommunications and consumer demand.

A.1 Brief Background

Lester D. Taylor received his PhD in Economics from Harvard University in 1963. He served as an instructor and assistant professor at Harvard before joining the Economics Department at the University of Michigan in 1969 and rising to the rank of associate professor in 1974. He joined the University of Arizona as a full-time professor in 1974 and retired with emeritus status in 2004.

Taylor’s first journal article appeared in *The Review of Economics and Statistics* in 1964. The first edition of the seminal work, *Consumer Demand in the United States*, co-authored with H. S. Houthakker, was published in 1966. Professor Taylor’s research career extends more than 45 years. Indeed, the year 2010 saw the

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\(^1\) While Elsevier’s *Scopus* is also available, its usefulness in the present study is severely limited by the fact that it only contains citations that have been made since 1995. Since much of Taylor’s work appeared and likely was cited much earlier than this, the impact of his work using *Scopus* would be markedly underestimated.

publication of the third edition of *Consumer Demand in the United States* and the second edition of his solo-authored book, *Capital, Accumulation, and Money: An Integration of Capital, Growth, and Monetary Theory*. In total, Professor Taylor has authored or co-authored 55 papers in refereed journals and edited volumes and 12 books or monographs.

**A.2 An Overall Assessment Using Bibliometrics**

Citation analysis is a common way to evaluate an author’s research impact. Pioneered by Eugene Garfield more than fifty years ago with the establishment of the ISI in 1958 (subsequently acquired by the Thomson Corporation in 1992) and the creation of the Science Citation Index in 1964 (now part of the WoS), citation analysis has become a mainstay of scholarly evaluations. Bibliometric measures that count co-authorships, co-inventors, collaborations, references, citations, and co-citations are widely used in many fields of science to analyze the popularity and impact of specific articles, authors, and even research groups or institutions. Indeed, the United Kingdom (UK) government is using bibliometric indicators in its Research Excellence Framework, a program designed to allocate research funding based on an assessment of the quality of the research produced in the UK.

This Appendix relies primarily on Google Scholar’s database and (the software) *Publish or Perish* (*PoP*) to investigate the overall impact of Taylor’s body of research. Google Scholar, introduced in 2004, includes publications and citations in journals, books and book chapters, conference proceedings, government reports, and working papers. While the WoS is also used in the analysis, it is much less comprehensive than Google Scholar since it only includes publications and citations found in a group of ISI-selected journals. Thus, it ignores books, monographs, reports, and edited volumes. Since many of Taylor’s publications appear in these other sources and may have been cited by papers appearing in these other sources, relying on the WoS alone would likely underestimate the impact of his body of work. (The counts found in PoP may not be perfect either since they rely only on materials that have been posted on the Web.) The one major advantage of using the WoS compared with Google Scholar is that it contains address information that we can use for a geospatial analysis of the impact of Taylor’s work.

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3 Garfield’s pioneering paper in 1955 “envisioned information tools that allow researchers to expedite their research process, evaluate the impact of their work, spot scientific trends, and trace the history of modern scientific thoughts. [http://thomsonreuters.com/products_services/science/free/essays/50_years_citation_indexing](http://thomsonreuters.com/products_services/science/free/essays/50_years_citation_indexing).

4 [http://www.hefce.ac.uk/research/ref](http://www.hefce.ac.uk/research/ref)

5 In addition, the WoS does not contain publications prior to 1970. The WoS “cited reference” function does include citations to non-ISI listed journals but captures only those citations that have appeared in an ISI-listed journal. See Harzing (2010), p. 172.
To illustrate the differences in coverage, Table A.1 shows the publication and citation counts obtained using WoS and PoP. In compiling this table, the WoS “cited reference” feature was also used which does include citations to non-ISI journals, although it still excludes citations from non-ISI journals and also excludes citations to a second author of a publication.

As expected, the publications and citation counts obtained using PoP are considerably larger than those obtained using either of the WoS searches. To get a sense of where the disparities arise, Table A.2 shows Taylor’s 10 most cited works according to PoP and compares their citation counts with those found using the cited reference function of WoS. Not surprisingly, using WoS, the two books that Taylor co-authored with Houthakker have zero citations since they are non-ISI works and ISI does not track citations to the second author of a publication. These two account for more than 900 citations alone using PoP. For the other eight publications in the top 10, the fact that citations from non-ISI sources are excluded from the WoS means that their citation counts are often less than half of those reported by PoP. The counts also indicate how widely Taylor’s work has been cited in non-ISI journals.

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Table A.1  Comparison of metrics from WoS and PoP

<table>
<thead>
<tr>
<th>Metric</th>
<th>General (&gt;500 citations)</th>
<th>WoS</th>
<th>PoP</th>
<th>Performing metric (&gt;500 citations)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Publications</td>
<td>19</td>
<td>41</td>
<td>67</td>
<td></td>
</tr>
<tr>
<td>Citations</td>
<td>431</td>
<td>869</td>
<td>2940</td>
<td></td>
</tr>
</tbody>
</table>

Table A.2  Taylor’s 10 most cited works from PoP (Google Scholar)

<table>
<thead>
<tr>
<th>WoS</th>
<th>PoP</th>
<th>Title</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>630</td>
<td>Consumer demand in the United States</td>
<td>1970</td>
</tr>
<tr>
<td>327</td>
<td>568</td>
<td>The demand for electricity: a survey</td>
<td>1975</td>
</tr>
<tr>
<td>0</td>
<td>286</td>
<td>Consumer demand in the United States, 1929–1970</td>
<td>1966</td>
</tr>
<tr>
<td>79</td>
<td>266</td>
<td>Telecommunications demand in theory and practice</td>
<td>1994</td>
</tr>
<tr>
<td>62</td>
<td>168</td>
<td>Telecommunications demand: a survey and critique</td>
<td>1980</td>
</tr>
<tr>
<td>23</td>
<td>86</td>
<td>Post-divestiture long-distance competition in the United States</td>
<td>1993</td>
</tr>
<tr>
<td>45</td>
<td>77</td>
<td>The demand for energy: a survey of price and income elasticities</td>
<td>1977</td>
</tr>
<tr>
<td>40</td>
<td>65</td>
<td>Three-pass least squares: a method for estimating models with a lagged dependent variable</td>
<td>1964</td>
</tr>
<tr>
<td>24</td>
<td>65</td>
<td>Saving out of different types of income</td>
<td>1971</td>
</tr>
<tr>
<td>26</td>
<td>58</td>
<td>Advertising and the aggregate consumption function</td>
<td>1972</td>
</tr>
</tbody>
</table>

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As expected, the publications and citation counts obtained using PoP are considerably larger than those obtained using either of the WoS searches. To get a sense of where the disparities arise, Table A.2 shows Taylor’s 10 most cited works according to PoP and compares their citation counts with those found using the cited reference function of WoS. Not surprisingly, using WoS, the two books that Taylor co-authored with Houthakker have zero citations since they are non-ISI works and ISI does not track citations to the second author of a publication. These two account for more than 900 citations alone using PoP. For the other eight publications in the top 10, the fact that citations from non-ISI sources are excluded from the WoS means that their citation counts are often less than half of those reported by PoP. The counts also indicate how widely Taylor’s work has been cited in non-ISI journals.

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6 These counts do not correct for self-citations. The counts exclude proceedings, book reviews, PhD dissertations, unpublished papers, and material not referenced on the vitae. The raw counts had to adjust for errors in citing titles, author names, and year of publication.
Table A.1 indicates that over his career, Professor Taylor has published 67 works that have received 2,940 citations. What does this record say about Professor Taylor’s place among academic economists? We can get some clues from prior studies of publishing productivity and citations practices in economics. First, inequality in publishing is a fact of life in economics and other fields that require individual creativity (David 1994). Indeed, a recent study (Hutchinson et al. 2010) found that more than 51% of the 1985 cohort of doctorates in economics had not published even a single refereed journal article by 1999. Furthermore, a study using data from the 1993 National Survey of Postsecondary Faculty (NSOPF) (Hartley et al. 2001) found that 27% of the economists surveyed had never published a single refereed article (10% for economists at research universities, a percentage that increased to 24% for faculty with more than 21 years of experience). Thus, many academic economists simply do not publish even one refereed journal article.

On the other hand, of those who publish, the Hartley et al., found that only 23% of the faculty at research institutions had published more than 20 refereed journal articles over their careers. For faculty with more than 22 years of experience, the corresponding percentage was 27%. (Taylor has 35 refereed journal publications.) This result is not surprising given the empirical regularity known as Lotka’s Law. The number of authors publishing n papers is approximately \( \frac{1}{n^2} \) of those publishing one paper. Thus, if 10,000 authors publish one (1) paper, one would expect to find one-quarter of them (2,500 authors) producing two papers, etc. Consequently, the likelihood of someone publishing 35 articles as Taylor has done is less than 0.1% of the number producing just one paper—or just 8 individuals out of 10,000—clearly placing Professor Taylor in the high-end of the distribution of publishing economists.

In academic circles, citations are also a measure of performance. Every published scientific paper must cite the papers that it is connected to or builds on. In the past, citations to one’s work were thought to be rather rare. In work done in the late 1980s, David Pendlebury of ISI found that the vast majority of papers were infrequently cited or completely uncited. Indeed, 55% of all the papers that were published in 1984 in the journal set covered by ISI’s citation database did not receive a single citation in the 5 years after they were published. And, in the social sciences (including business), the degree of uncitedness was even higher at 74.7%. A recent study by Wallace et al. (2009) using 25 million papers and 600 million references from the WoS over the period 1900–2006, however, has found

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7 The total excludes book reviews and miscellany.
8 Lotka (1926).
9 Indeed, a study by Cox and Chung (1991) confirms that the economics literature conforms well to this bibliometric regularity.
11 Pendlebury (1991) notes that these numbers fall when one excludes abstracts, editorials, obituaries, letters, and other non-papers and, as a result, the percentage of articles in the social sciences that are not cited falls to 48%.
that the degree of uncitedness has fallen. As the following figure taken from their
display shows, the degree of uncitedness ten years after an article has been published
is now below 40% in the social sciences. This figure also shows that the percentage
of papers receiving more than 20 citations has now grown to about 10% (Fig. A.1).
Thus far, the statistics from citation analyses have been based solely on journal
articles. A recent paper by Tang (2008), however, sheds light on the long-term
citation history of monographs published in six fields including economics. He
found that monographs in economics received on average 6.52 citations and
45% were never cited at all. Thus, the citation norms for journal articles and books
both suggest that Taylor’s citation record is extraordinary.
While one can look at the total number of citations that an author has received
or the average number of citations per publication, these indicators do not
distinguish between a large number of citations to a few influential works or a few
citations each to a larger body of less-influential work. To partially remedy this,
the Hirsch (2005) index h is often used as the metric to compare the publication
and citation records of different authors in the same discipline.
Hirsch’s h index is defined to be the largest number h such that the researcher
has at least h papers with h or more citations. For example, an h of 10 says that the
researcher has at least 10 papers with at least 10 citations. In order to achieve an h
of more than 10, the researcher would need to have more than 10 papers with more
than 10 citations. In essence, it can be thought of as a count of the number of
“good” papers that a researcher has written. The index also raises the bar for what
“good” means when comparing more accomplished researchers. Furthermore,
Hirsch’s h index has the desirable feature of discounting the disproportionate
weight given to both highly cited and uncited papers that result when counting the
average number of citations per paper.12
A recent paper by Ellison (2010) uses the h index to examine the citation
records (using Google Scholar) of the 166 economists who held tenured positions

12 Some criticisms have led to alternative variants that control for co-authorship as well. See
at one of the 25 most highly regarded US economics departments in the
2006–2007 academic year (Arizona is not one of them)\textsuperscript{13} and who received their
PhDs in 1989 or later. For this highly accomplished group, he found that the mean
h index was 18 with a minimum of 8 and a maximum of 50. Professor Taylor’s h
index is 22: twenty-two of his publications have received at least 22 citations each.
Thus, Taylor’s record compares favorably with this select group of younger
economists.\textsuperscript{14}

Next a more depth the impact that Taylor’s work is we conduct an in depth
analysis of the impact that Taylor’s work has had in the areas of demand analysis and
telecommunications.

The Demand for Electricity: A Survey, \textit{Bell Journal of Economics and

This is Professor Taylor’s first solo-authored article on demand analysis. As
shown in Table A.2, to date it has received more than 500 citations according to
PoP, which uses the Google Scholar database. Furthermore, out of the more than
200 articles published in the highly rated \textit{Bell Journal of Economics and
Management} over the period 1974–1976, this article was the 7th most cited.

Using data from ISI, the only database that contains the addresses of authors
who wrote journal articles that cite this work (ISI counts 291 journal citations\textsuperscript{15} to
this work), authors’ addresses are available for only 164 of the citations. These
data yield addresses for authors or coauthors located in 22 countries, with locations
in the United States being most prevalent. Of the remaining 21 countries, Canadian
authors account for 10 and French authors account for 5, with the remaining
countries accounting for 1–4 citations each. The following map highlights the
global influence of this work (Fig. A.2).

A.3 Telecommunications Demand

Two books capture the essence of Taylor’s contributions in the area of
telecommunications demand: \textit{Telecommunications Demand: A Survey and

In an analysis of the literature on this topic in economics and business done by
searching for the words “telecommunications” and “demand” anywhere in the

\textsuperscript{13} This list includes: MIT, Harvard, Stanford, Chicago, Princeton, NYU, UC-Berkeley,
Pennsylvania, UCLA, Columbia, Wisconsin, Northwestern, Duke, Yale, Rochester, UC-Davis,
Minnesota, UC-San Diego, Michigan, Maryland, Ohio State, Cornell, Texas, Southern California,
and Illinois.

\textsuperscript{14} For this select group of economists, there is a high likelihood that their h indices will increase
over their careers as they continue to produce highly regarded works.

\textsuperscript{15} This citation count is smaller than that reported in Table A.2 because ISI includes only
citations from journal articles and excludes citations from other sources and it does not include
citations from non-ISI journals.
title of the publication\textsuperscript{16} using Google Scholar’s PoP, 166 unique documents were uncovered after the raw data were cleaned. Of these 166 works, Taylor’s books on telecommunications were the first and second most-cited, with the 1994 volume receiving 270 citations and the 1980 volume garnering 154 citations.\textsuperscript{17} Of the 1,345 citations to this literature, these two books account for 31.5\% of the total. Furthermore, the eight works written or co-authored by Taylor account for 447 citations or about one-third of the total citations received by this literature.

Furthermore, in a broader search using PoP where the phrase “telecommunications demand” could appear anywhere in the publication, 774 contributions were identified after cleaning the raw data and excluding editorials, patent citations, and class notes. These documents garnered 11,603 citations. Even within this extensive body of literature, Taylor’s 1994 book was the fourth highest cited with 276 citations, while the 1980 book was ranked thirteenth with 158 citations.\textsuperscript{18}

\textsuperscript{16} This analysis missed papers for which the title did not include the words “telecommunications” and “demand.” For example, this search would miss a paper titled “Telephone Demand,” but the terms “telephone” and “demand” were too broad to identify literature that is closely related to Taylor’s work [4/27/2011].

\textsuperscript{17} These results differ from other citation counts since some publications may not have “telecommunications” and “demand” in title, and the analysis also did not pick up articles only citing “telephone demand.” [4/27/2011].

\textsuperscript{18} While we also would have liked to conduct a paper-paper network analysis of contributions in telecommunications demand, it proved impossible to do because many of the contributions were published as books, book chapters, or papers not in ISI-listed journals. Furthermore, the topic is so broad that it was not possible to identify closely related works.
The geospatial influence of Taylor’s books on telecommunications demand can be investigated by using the ISI reference application again. For the 1980 volume, 47 citations from journal articles were found, all of which contained address information. These data revealed citations from authors working in 11 countries, with the bulk of the citations, 33, coming from authors located in the United States. For the 1994 volume, 49 citations were found, of which one was missing address information. In this instance, 15 countries were represented, and 33 of these articles were authored or co-authored by scientists located in the United States. Figure A.3 displays the geospatial distribution of the citations made to both of these books combined, 104 citations in articles written by authors located in 19 different countries.

A.4 Conclusions

It is clear from this analysis that Professor Taylor ranks highly among influential researchers based on several different measures of citations to his demand work in electricity and telecommunications. His works are widely cited both in the US and around the world, and they are among the most frequently cited work in demand analysis. Finally, Professor Taylor has a publication record and a citation record that compares favorably to top researchers at the most elite universities in the country.
Biographies

James Alleman is Professor Emeritus of Network Economics in the College of Engineering and Applied Science, University of Colorado, Boulder and is a Senior Fellow and Director of Research at Columbia Institute of Tele-Information (CITI), Columbia Business School, Columbia University. Dr. Alleman was a Visiting Senior Scholar at IDATE in Montpellier, France, in the fall of 2005 and continues his involvement in IDATE’s scholarly activities. He was the Director of the International Center for Telecommunications Management at the University of Nebraska at Omaha, Director of Policy Research for GTE, an economist for the International Telecommunication Union, and a Visiting Professor at the Columbia Business School. He has conducted economic and financial research in information and communications technology (ICT) policy. He provides litigation support in this area.

To reach Dr. Alleman directly, send an email to James.Alleman@Colorado.edu or visit his website: http://www.colorado.edu/engineering/alleman/.

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His research interests include adoption and diffusion of innovation; receptivity of information and communication technology by individuals and organizations; as well as the effects of culture and environment on technology usage, decision processes, and productivity of technology usage. Currently he is enrolled at Curtin University, Western Australia, for higher studies. He is also currently involved in two research projects at the Communication Economics and Electronic Markets Research Centre (CEEM). He has published in many scientific journals and collective works and has presented his work at many international conferences.

Aniruddha Banerjee is an economic consultant specializing in strategic, regulatory, and litigation aspects of network industries. He is Senior Vice President for advanced analytics at Centris and leads data modeling for communications and media companies. He was formerly Vice President at
Analysis Group, Inc. and National Economic Research Associates. In those positions, he testified for industry clients before regulatory agencies in the US and international clients in areas of market research, competition policy, mergers and acquisitions, optimal regulation, and complex business litigation. Dr. Banerjee has held positions in AT&T’s Market Analysis and Forecasting Division, Bell Communications Research’s Regulatory Economics group, and BellSouth Telecommunications’ Pricing Strategy and Econometrics group. He serves on the Board of Directors and Publications Committee of the International Telecommunications Society. Dr. Banerjee holds a PhD in Agricultural Economics from the Pennsylvania State University, where he also taught economics for several years.


Gail Blattenberger is a member of the Economics Department at the University of Utah. She received her PhD in Economics from the University of Michigan in 1977 where she studied under Lester Taylor. They worked together on electricity demand. She is currently on long-term disability (MS), but she continues her research at the University of Utah. Her research currently involves Bayesian statistical analysis with emphasis on understanding model fragility. This research is directed toward operational methods with an understanding that useful statistical procedures should involve model assessment of observable or measureable outcomes as opposed to discussions of parameters within models. Recent advances in computing allow one to pay attention to the predictive distribution integrated or averaged over thousands of potential models.

Erik Bohlin is Professor at the Department of Technology Management and Economics at Chalmers University of Technology, Gothenburg. He has published in a number of areas relating to the information society—policy, strategy, and management. He is Chief Editor of Telecommunications Policy; Chair of the International Telecommunications Society; Member of the Scientific Advisory Boards of Communications & Strategies, The International Journal of Management and Network Economics, and Info—the Journal of Policy, Regulation and Strategy for Telecommunications, Information and Media; Member of the Scientific Committee of the Florence School of Regulation (Communications and Media); and Member of the Swedish Royal Academy of Engineering Sciences. Erik Bohlin obtained his graduate degree in Business Administration and Economics at the Stockholm School of Economics (1987) and his PhD at Chalmers University of Technology (1995).
Kenneth O. Cogger is Professor Emeritus, University of Kansas, and President, Peak Consulting. He received a PhD in Statistics and Management Science from the University of Michigan and has taught at the University of Michigan, Montana State University, George Washington University, and the University of Kansas, where he served as Director of Research and Director of Doctoral Programs. He has over 40 refereed articles in the *Journal of the American Statistical Association, Management Science, Operations Research, the Journal of Financial and Quantitative Analysis, and the Journal of Accounting Research*. He has served on National Science Foundation review panels in Statistics, Operations Research, and Industrial Engineering. He has been honored with the Mentor Award by the Association of Doctoral Students at Kansas and also was named L. J. Buchan Distinguished Professor by Beta Gamma Sigma. His current research interests are in nonlinear statistical modeling. His recent consulting engagements include clinical pharmaceutical trials optimization.

Robert W. Crandall is a Non-Resident Senior Fellow in the Economic Studies Program of the Brookings Institution. His research has focused on telecommunications regulation, cable television regulation, the effects of trade policy in the steel and automobile industries, environmental policy, and the changing regional structure of the US economy. His current research focuses on the effects of occupational licensing of lawyers, competition in the telecommunications sector, and the development of broadband services. His latest book, co-authored with Clifford Winston and Vikram Maheshri, *First Thing We Do, Let’s Deregulate All the Lawyers*, was published by Brookings in 2011. His book, *Competition and Chaos: U.S. Telecommunications since the 1996 Act*, was published by Brookings in 2005. He is the author or co-author of fourteen other books on telecommunications, cable television, and a variety of regulatory issues as well as numerous articles in scholarly journals.

He holds an MS and a PhD in economics from Northwestern University.

Bruce L. Egan is an economist and Senior Affiliated Research Fellow, Columbia Institute for Tele-Information (CITI), Columbia University, New York. Mr. Egan has over 35 years of experience in economic and policy analysis of telecommunications in both industry and academia. He was Executive Vice President of INDETEC International, a consulting firm specializing in media and telecommunications during 1996–1998. He was an economist at Bellcore 1983–1988 and Chief Economist at Southwestern Bell Telephone Company from 1976 to 1983. Mr. Egan has published numerous articles in books and journals on telecommunications costing, pricing, and public policy. His research concentration is public policy and economics of technology adoption in telecommunications; he has written two books on the subject: *Information Superhighways Revisited: The Economics of Multimedia* (Artech House, Norwood MA 1997) and *Information Superhighways: The Economics of Advanced Communication Networks* (1990).
Richard Fowles is an Associate Professor in the Department of Economics, University of Utah. He obtained his PhD in economics and his BA in philosophy at the University of Utah. He has taught at Rutgers University and Westminster College. Fowles studies applied Bayesian statistics in fields related to low probability/high consequence events.

Teresa Garín-Muñoz is Professor at the National University of Distance Education (UNED) in Spain. She is currently director of the Department of Economic Analysis, in which she teaches Microeconomics (undergraduate and Economics of Tourism (graduate level). Professor Garín-Muñoz holds a M.A. in Economics from the University of California San Diego and a PhD from the UNED. She has been a Visiting Scholar at the University of California San Diego. She has written several textbooks on Microeconomics specially designed for distance learners. Some results of her research have been published in academic international journals such as *Information Economics and Policy, Applied Economics, Applied Economic Letters, Tourism Management, Tourism Economics, and International Journal of Tourism Research*. She has also published some articles in Spanish journals with a large national circulation. In addition, for the last ten years, she directs and teaches a Master in Economics of Telecommunications.

Mohsen Hamoudia is Head of Strategy of the Large Projects department within Orange Business Services, France Telecom Group (Paris). He teaches forecasting techniques at the ESDES-Business School of Lyon and at ISM (Institut Supérieur du Marketing) in Paris. He is Director on the Board of Directors of the International Institute of Forecasters.

He received his MS degree (DESS) in Econometrics, MS degree (DEA) in Industrial Economics, and PhD in Industrial Economics from the University of Paris. Dr. Hamoudia has published and presented papers in the areas of forecasting, econometrics of telecoms and information and communication technology (ICT), and time-series as applied to transportation and telecommunications. He organized the 28th International Symposium on Forecasting in Nice, France, in June 2008.

Donald J. Kridel is Associate Professor of Economics at the University of Missouri-St. Louis. His primary teaching responsibilities are applied econometrics, microeconomics, forecasting, and telecommunications economics. Prior to joining the faculty at the University of Missouri-St. Louis in 1993, Kridel held various positions, including Director-Strategic Marketing, at Southwestern Bell Corporation (now AT&T). Kridel earned his PhD in economics from the University of Arizona where Lester Taylor was his PhD advisor. Kridel has been active in telecommunications demand analysis and pricing research for nearly 30 years, often working with Professor Taylor. Kridel is currently interested in automating analytics and applying econometric techniques to real-time decision-making.
Sharon G. Levin is Emeritus Professor of Economics at the University of Missouri-St. Louis. In recent years, Dr. Levin’s research has focused on the quality and composition of the US scientific workforce. Major themes have been the impact of immigration on the American scientific community, as well as of age and vintage and information technology on scientific productivity. In 1993, she was awarded the Chancellor’s Award for Excellence in Research and Creativity by the University of Missouri-St. Louis.

Dr. Levin has published numerous articles in journals including, *The American Economic Review*, *Science*, *The Review of Economics and Statistics*, and *Social Studies of Science and Management Science*. She also co-authored *Striking the Mother Lode in Science* (Oxford University Press). Dr. Levin graduated from the City College of New York (Phi Beta Kappa) with a B.A. in Economics and earned both her M.A. and PhD in Economics from the University of Michigan.


Dr. Levin has a B.A. in Economics from Grinnell College and a PhD in Economics from the University of Michigan. He has published numerous articles in journals including the *Southern Economic Journal*, *The Review of Economics and Statistics*, *the Review of Industrial Organization*, *the Journal of Energy Law and Policy*, and *Telecommunications Policy*. He is co-editor of books on antitrust and telecommunications. He has served as an expert witness in antitrust and regulatory proceedings and testified before federal and state regulatory commissions in the US and Canada, and in US federal and state courts.

He is on the Board of Directors of the International Telecommunications Society.

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