Brantley T. Liddle

5604 York Lane, Bethesda, MD 20814

[btliddle@alum.mit.edu](mailto:btliddle@alum.mit.edu)

Phone: + 1 (301) 652-1755

Fax: 1-928-436-3987

**HIGHLIGHTS OF QUALIFICATIONS**

* Interdisciplinary training emphasizing system theory, evaluation, and policy, including decision analysis, system dynamics, optimization, CGE modeling, advanced panel econometrics, economics, capital budgeting, and option pricing.
* Expert in developing innovative, cross-disciplinary, public policy relevant research program on the environment-development-population system.
* Extensive teaching experience developing innovative discussion/demonstration/case-based teaching program focusing on quantitative decision-making techniques for both undergraduates and MBA/graduate students.

**EDUCATION**

**Massachusetts Institute of Technology**, Cambridge, MA.

Sloan School of Management and Department of Civil and Environmental Engineering.

**Ph.D.**, Management and Civil and Environmental Engineering, 1998.

Dissertation: *The Environment-Development-Population System: A Treatment of Global Sustainability*.

First sustainable development dissertation at MIT in either engineering or management/economics.

Chair: Fred Moavenzadeh, Prof. Civil and Environmental Engineering.

Fellowships: Program for Advanced Construction Technology Fellow, 1995-1996; Louis Berger Fellow, 1997.

Member: Alliance for Global Sustainability; Consortium on Construction Industry and Global Environment.

**S.M.**, Civil and Environmental Engineering, 1993.

Thesis: *Sustainable Development, Infrastructure and Environmental Investment, and the Privatization Decision*.

**Brown University**, Providence, RI.

**Sc.B.-A.B**., Civil Engineering/Political Science, 1990.

**Additional Training**

Overlapping Generation Models: Theory and Simulation, ISEG, Lisbon, 2003.

New Developments in Input-Output Modeling: a Short Course, ISEG, Lisbon, 2003.

Advanced General Equilibrium Modeling, Free University of Brussels, 2002.

Agent-Based Computational Demography, Max Planck Institute for Demographic Research, 2002.

Analysis of Population Changes and Differences, Max Planck Institute for Demographic Research, 2001.

**RESEARCH & PROFESSIONAL EXPERIENCE**

Research primarily addresses policy oriented questions about the environment-development-population system, and falls into two broad categories: first, analysis of the environment-development-population relationship by considering it on the whole, system level (using simulation modeling); second, consideration of the major sub-system pairs (environment/development, environment/population, & development/population), using empirical methods like econometrics and demographic decomposition techniques. Specific interests include:

* Systemic relationship among population age structure, development, and energy/environment, including estimating that relationship (e.g., STIRPAT).
* Environmental impact of high concentration of human activities in urban systems (transport and buildings) and the policy, institutional, and technology options to lower that impact.
* Global sustainability: flows of people, capital, and goods and their impact on environment and development.
* Estimating the relationship between development and pollution (e.g., EKC), while addressing stationarity and cross-sectional dependence econometric challenges.
* Policy/institutional analysis and equity concerns of global climate change.
* Macro relationship between energy and GDP, including evolution of and convergence among countries’ energy and carbon intensities.
* Systemic relationship among urbanization, GDP/development, and energy/electricity consumption.

**Asia Pacific Energy Research Centre (APERC)**, Tokyo, Japan. 2014-2015

Vice President/Chief of Research, Special Advisor

Managed APERC’s 14-17 international researchers and the development of the reference case for the flagship output *APEC* *Energy Demand and Supply Outlook 6th Edition*.

Oversaw/contributed to the finalization of three independent reports and a paper based on one report that was published in *Energy Policy* (in 21016).

Advised, mentored, and supported APERC’s modeling team, including implemented program to increase participation at key international conferences, improve presentation skills, and focus on publication in peer-reviewed journals.

Represented APERC at Asia-Pacific Economic Cooperation (APEC) meetings, including reporting to the APEC Energy Working Group on APEC’s progress towards its aspirational goal of reducing energy intensity by 45% over 2005-2035.

Continuing personal energy/environment research program (with international collaborators), which includes further three peer-reviewed journal publications, five seminar/workshop presentations, five conference presentations, three papers under review, and three papers in process.

**Victoria University**, Melbourne, Australia. 2007-2014

Senior Research Fellow, Centre for Strategic Economic Studies

Led the Centre’s economic-environmental modeling work, which included:

1. Analyzing energy intensity trends and convergence among OECD countries, the world and major regions, and China’s provinces.
2. Employing advanced econometric techniques like panel cointegration and vector error correction modeling to consider a number of energy relationships on a systemic level, e.g., (i) gasoline tax and price, income, car ownership, and miles driven/gasoline consumption; (ii) population change, affluence, technology, and emissions/energy use; and (iii) urbanization, development, and energy consumption.
3. Exploring the causality among different aggregations of GDP/output and energy consumption.

Research resulted in 20 publications in peer-reviewed journals, seven invited seminars/workshops, 15 conference presentations, and four Australian Research Council grant applications submitted.

**US Department of Energy,** Washington, DC. 2004-2005

Interdisciplinary Economist, Energy Information Agency

Updated industry demand sector of National Energy Modeling System (NEMS); wrote sections on industrial energy use for EIA’s *Annual Energy Outlook* and *International Energy Outlook*; performed *Annual Energy Outlook* NEMS Forecast Evaluation; reviewed the System for the Analysis of Global Energy Markets (SAGE) model.

**Max Planck Institute for Demographic Research**, Rostock, Germany. 2001-2003

Postdoctoral Research Fellow, Research Group on Population, Economy, and Environment

Designed and conducted research program to inform energy consumption policy decisions in developed countries that resulted in two peer-reviewed publications, three invited seminars, and three conference presentations:

1. Evaluated link between GDP and energy, using time-series techniques and levels of disaggregation of GDP and energy consumption in OECD countries not used in previous literature, and found surprising result that GDP and energy are not strongly linked.
2. Explored influence of dynamics of household characteristics on energy consumption using demographic decomposition techniques, and found that demographic change is significant, but less important than changes in demand.
3. Determined the importance of spatial intensity and demographics as explanatory variables in per capita road energy consumption using panel data OLS.

Examined the role of demography in explaining the developing country growth collapse of the 1970s and 1980s. Work bridged two related, but previously unconnected literatures, and found that rapid changes in age structure influence “social cohesion” and the ability to manage shocks. Research resulted in two invited seminars, two conference presentations, and a publication in a peer-reviewed journal.

Supervised graduate student research on population and environment.

**Massachusetts Institute of Technology**, Cambridge, MA. 1998-2000

Research Scientist, Technology and Development Program

Co-authored three chapters plus introduction and co-edited book on sustainability/energy use and urban systems targeted at graduate students in policy and science and at government and industry decision-makers as part of research team from Swiss Federal Institutes of Technology (ETH), University of Tokyo, and MIT.

Co-authored "Institutional Arrangements for Reducing Transport Emissions," a paper presented to the World Bank as part of consulting project to assess *Tehran Transport Emissions Reduction Project*.

Authored part of successful proposal to Alliance for Global Sustainability (consortium: ETH in Zurich, University of Tokyo, and MIT) for project in Guangzhou, China.

Co-authored keynote addresses to infrastructure conferences in Bangkok and Singapore on infrastructure privatization in developing Asia.

Advised, coordinated environmental research of masters/doctoral students.

**Massachusetts Institute of Technology**, Cambridge, MA. 1991-1997

Research Assistant, Center for Construction Research & Education

Research on privatization of infrastructure, economic incentives for pollution control/prevention, environmental-ecological economics, sustainable development, including for Moavenzadeh, F. *Global Construction and the Environment: Strategies and Opportunities*, New York: John Wiley and Sons, Inc. 1994.

Drafted successful research proposal, *Future Cities: Towards Sustainable Cities*, for Alliance for Global Sustainability. Authored and presented initial energy efficiency portion of the project.

Developed spreadsheet model to value compound options for Kaufman, G.M. *Risk Analysis: From Prospect to Exploration Portfolio and Back*, MIT Sloan School Working Paper 3639, December 1993.

Presented research results to Consortium on Construction Industry and Global Environment (consortium: three Japanese construction firms and MIT).

**Doctoral Dissertation and Extensions**

Developed a dynamic, transdisciplinary (borrowing from economics, demography, and political and environmental sciences), multi-country simulation model to explore sustainable development challenges for countries with different initial conditions (population, natural resource endowment, technology, and physical and human capital) in a world with free trade, free production substitution, flexible economic structures, and the ability to upgrade productive factors via investment. Model has been expanded to include international migration and capital flows, and is both among the most comprehensive, dynamic descriptions of the population-development-environment system in the literature, and at the forefront of the new population-economic growth literature emphasizing the importance of age-structure dynamics.

Research resulted in four peer-reviewed publications, eight invited seminars, and four conference presentations.

**TEACHING EXPERIENCE**

Adjunct professor at Hood College and Trinity University. Also, adjunct professor at various English language business/economics programs in Moscow. Students are engaged through case analyses, role playing, and classroom experiments (e.g., beer game, simulation of tradable discharge permit market). Teaching interests fall under two broad categories: (1) environmental, energy, and resource economics and policy; and (2) decision making. These interests include competencies in:

* Environmental-Ecological and resource-energy economics.
* Environment-Development-Population system (Pollution Haven Hypothesis, carbon leakage, Environmental Kuznets Curves, population/households and environment/energy, population and development).
* Public and Micro-Economics.
* Tools/techniques for complex decision-making (decision analysis, NPV/adjusted NPV, real options/contingent claims).
* Simulation modeling as a policy/research tool (system dynamics, multi-agent, general equilibrium).
* Systems/process analysis.
* Capital budgeting/international project finance.

**Adjunct Professor, Trinity University,** Washington, DC. 2006-2007.

Finance for Non-financial Managers (Essentials of finance theory and capital budgeting for MBA students), Fall 2006.

Quantitative Methods for Management (Decision analysis, linear programming, and probability applied to business decisions for MBA students), Fall 2006.

**Adjunct Professor**, **Hood College**, Frederick, MD. 2006-2007.

Environmental Policy (Economics and decision analysis applied to environmental policy, as well as to issues such as climate change and sustainable development, for advanced undergraduates and graduate students), Spring 2006.

**Adjunct Professor**, Moscow, Russia, 2000-2001.

**The American Institute of Business and Economics**.

Production and Operations Management (Process analysis, supply-chain management, simulation modeling, queuing theory, system dynamics, decision analysis, and linear programming for MBA students), Fall 2000.

Mathematics for Business (calculus, probability, and statistics with applications to business and economics for MBA students without technical bachelor degrees), May-June 2000.

**Moscow University Touro**.

Financial Engineering (for MBA students), April-May 2001.

Principles of Finance (for undergraduate students) March-April 2001.

Corporate Finance (for advanced undergraduate students), October-November 2000.

**American Business Program** at Moscow State Linguistics University.

Applied Micro-Economics (including public economics, environmental and natural resource economics for MBA students), February-March 2001.

Management Science (decision analysis and linear programming for MBA students), February-March 2000.

**CONSULTANCIES, GRANTS & AWARDS**

Travel grant award from Econometric Society to attend and present at Econometric Society World Congress 2015. $2,500 USD.

*Analysis of Future Demand for Barristers Chambers*. B. Rasmussen and A. Welsh (I made initial client contact). Report to Barristers’ Chambers Ltd. 2013. $15,000 AUD.

VU Grant Preparation Support Scheme. 2012. $1,500 AUD.

*Valuing Adaptation under Rapid Change: Anticipatory Adjustments, Maladaptation and Transformation.* with R. Jones, J. Handmer, P.Sheehan, and R. Marsh. National Climate Change Adaptation Research Facility. 2011-2012. $350,000 AUD.

*Learning from Economics and Science to Manage Climate Risks*. with R. Jones and P. Sheehan. VU postdoctoral research fellowship for R. Bodman. 2011-2013. $189,308 AUD.

*Emissions Paths and New Technologies in the New Global Economy: Implications for Climate Outcomes, Damage Probabilities and the Timing and Nature of Policy Responses*. with P. Sheehan, S. Islam, and R. Jones. VU ARC Discovery near miss award. 2008. $20,000 AUD.

*Global Emissions Scenarios*. with R. Jones and P. Sheehan. Report to the Department of Premier and Cabinet (VIC). 2007. $36,600 AUD.

*Future Cities: Dynamics and Sustainability*. with F. Moavenzadeh, K. Hanaki, and P. Baccini. Alliance for Global Sustainability grant. 1999.

*Institutional Arrangements for Reducing Transport Emissions.* with F. Moavenzadeh. Report to The World Bank. 1998.

**PUBLICATIONS & PRESENTATIONS**

**For Working Papers & Pre-prints:**

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| <http://ssrn.com/author=375472> | <http://ideas.repec.org/f/pli778.html> |
| <https://ieej.academia.edu/BrantleyLiddle> | <http://econpapers.repec.org/RAS/pli778.htm> |

**HIGHLIGHTS**

* Over 30 peer-reviewed journal publications, 29 as 1st/sole author (others as 2nd author)
* 75% of papers published in top quartile journals (SCImago), including 6 papers in top 2.5% and 9 more in top 10% ranked journals
* h-index 18; h-index since 2011 17; hI,norm-index 16 (weighted by no. authors); hc-index 16 (weighted by recent cites); g-index 28 (weights highly cited papers); i10-index 21 (Google Scholar)
* Top 5% in paper downloads since January 2013 and top 2.5% over last 24 months at Social Science Research Network (out of over 300,000 authors)
* Top 5% by 30-day views on academia.edu (out of over 26 million academics)
* Top 15% among (43,022) economists (even though less than half of my papers considered) in distinct works, citations, and downloads last 12 months (weighted by no. authors) (RePEc)
* 2011 *Demographic Research* paper most cited paper published in that journal/year (Scopus)
* 2004 & 2010 *Population and Environment* papers 4th most cited papers published in that journal/years (Scopus), and among the top 10% and 5% cited, respectively, for all 331 papers that journal published over 2000-2010 (Google Scholar)
* 2009 & 2010 electricity/energy intensity papers cited 50 & 60 times, respectively (Google Scholar)

1. **Population & Environment**

**Peer Reviewed Journals**

Liddle, B. *What Are the Carbon Emissions Elasticities for Income and Population? Bridging STIRPAT and EKC via Robust Heterogeneous Panel Estimates.* **Global Environmental Change**, Vol. 31, 2015.

Liddle, B. & Lung, S. *Might Electricity Consumption Cause Urbanization Instead: Evidence from Heterogeneous Panel Long-run Causality Tests.* **Global Environmental Change**, Vol. 24, 2014.

Liddle, B. *Impact of Population, Age Structure, and Urbanization on Greenhouse Gas Emissions/Energy Consumption: Evidence from Macro-level, Cross-country Analyses*. **Population and Environment**, Vol. 35, 2014.

Liddle, B. *Population, Affluence, and Environmental Impact Across Development: Evidence from Panel Cointegration Modeling*. **Environmental Modeling and Software**, Vol. 40, 2013.

O’Neill, B., Liddle, B., Jiang, L., Smith, K., Pachauri, S., Dalton, M., & Fuchs, R. *Demographic change and carbon dioxide emissions*. **The** **Lancet**, Vol. 380, Issue 9837, 2012.

Liddle, B. *Long-run Projections of Environmental Impact in the OECD: The Importance of Uncertainty and Age Structure.* **International Journal of Global Environmental Issues**, Vol. 11, Nos. 3/4, 2011.

Liddle, B. *Consumption-Driven Environmental Impact and Age Structure Change in OECD Countries: A Cointegration-STIRPAT Analysis.* **Demographic Research**, Vol. 24, Article 30, May 2011.

Liddle, B. & Lung, S. *Age-structure, Urbanization, and Climate Change in Developed Countries: Revisiting STIRPAT for Disaggregated Population and Consumption-Related Environmental Impacts.* **Population and Environment**, Vol. 31, No. 5, May 2010.

Liddle, B. *Demographic Dynamics and Per Capita Environmental Impact: Using Panel Regressions and Household Decompositions to Examine Population and Transport.* **Population and Environment**, Vol. 26, No. 1, September 2004.

**Invited Presentations**

Liddle, B. *The Effect of Demographics on the Evolution of Energy Demand*. Presented at the KAPSARC workshop on Energy Demand and Efficiency, London, March 22, 2016.

Liddle, B. *Considering a Population, Urbanization/Density, Energy/Emissions Nexus*. Presented at the Sustainability Research Institute, University of Leeds, Leeds, UK, March 18, 2016.

Liddle, B. *Impact of Population, Age Structure, and Urbanization on Greenhouse Gas Emissions/Energy Consumption: Evidence from Macro-level, Cross-country Analyses*. Presented at the International Seminar on Population Dynamics and the Human Dimensions of Climate Change, Canberra, Australia, November 27, 2012.

Liddle, B. *What Are the Carbon Emissions Elasticities for Income and Population? A Robustness Exercise Employing the STIRPAT Framework.* Presented at National Center for Atmospheric Research, Boulder, CO, May 9, 2012.

Liddle, B. *Urban Density and Climate Change: A STIRPAT Analysis using City-level Data*. Presented at the CUPC-NCAR Workshop on Migration, Urbanization, and Climate Change, Boulder, CO, May 7 2012.

Liddle, B. *Demographic Dynamics and Per Capita Environmental Impact.* Presented at Environmental Sciences Institute, Florida A & M University, December 7, 2005.

**Conference Presentations & Proceedings**

Liddle, B. *What Are the Carbon Emissions Elasticities for Income and Population? New evidence from heterogeneous panel estimates robust to stationarity and cross-sectional dependence.* Presented at the World Congress of Environmental and Resource Economists, Istanbul, Turkey, July 2, 2014.

Liddle, B. *What Are the Carbon Emissions Elasticities for Income and Population? New Evidence from Panel Estimates Robust to Stationarity and Cross-sectional Dependence.* Presented at the 27th IUSSP International Population Conference, Busan, Korea, August 29, 2013.

Liddle, B. *Impact of Population, Age Structure, and Urbanization on Greenhouse Gas Emissions/Energy Consumption.* Presented at the Australian Population Association 2012 Conference, Melbourne, Australia, December 5, 2012.

Liddle, B. *Population and Environment: Reconsidering STIRPAT for Consumption-Related Environmental Impacts and Cointegration Modeling.* Presented at the 11th Biennial Conference of the International Society for Ecological Economics, Oldenburg-Bremen, Germany, August 23, 2010.

Liddle, B. *Consumption-Driven Environmental Impact and Age-Structure Change in OECD Countries: A Cointegration-STIRPAT Analysis*. Presented at European Population Conference 2010, Vienna, Austria, September 2, 2010.

Liddle, B. *Household Dynamics and Per Capita Environmental Impact.* Presented at 8th Biennial Conference of the International Society for Ecological Economics, Montreal, Canada, July 13, 2004.

Liddle, B. *The Influence of Spatial and Demographic Dynamics on Per Capita Road Energy Use in OECD Countries.* Poster presented at European Population Conference 2003, Warsaw, Poland, August 29, 2003.

1. **Energy & Macro-Economy**

**Peer Reviewed Journals**

Liddle, B. & Messinis, G. *Revisiting sulfur Kuznets curves with endogenous breaks modeling: Substantial evidence of inverted-Us/Vs for individual OECD countries.* **Economic Modelling**, Vol. 49, 2015.

Liddle, B. & Lung, S. *Revisiting Energy Consumption and GDP Causality: Importance of A Priori Hypothesis Testing, Disaggregated Data, and Heterogeneous Panels.* **Applied Energy**, Vol. 142, 2015.

Liddle, B. & Lung, S. *The long-run causal relationship between transport energy consumption and GDP: Evidence from heterogeneous panel methods robust to cross-sectional dependence.* **Economic Letters**, Vol. 121, 2013.

Liddle, B. *The energy, economic growth, urbanization nexus across development: Evidence from heterogeneous panel estimates robust to cross-sectional dependence.* **The** **Energy Journal**, Vol. 34, 2013.

Liddle, B. *The importance of energy quality in energy intensive manufacturing: Evidence from panel cointegration and panel FMOLS.* **Energy Economics**, Vol. 34, 2012.

Liddle, B. *OECD Energy Intensity: Measures, Trends, and Convergence.* **Energy Efficiency**, Vol. 5, 2012.

Liddle, B. *Breaks and Trends in OECD Countries’ Energy-GDP Ratios.* **Energy Policy**, Vol. 45, 2012.

Liddle, B. *Revisiting World Energy Intensity Convergence for Regional Differences*. **Applied** **Energy**, Vol. 87, 2010.

Liddle, B. *Electricity Intensity Convergence in IEA/OECD Countries: Aggregate and Sectoral Analysis*. **Energy Policy**, Vol. 37, 2009.

Liddle, B. *How Linked are Energy and GDP: Reconsidering Energy-GDP Cointegration and Causality for Disaggregated OECD Country Data.* **International Journal of Energy, Environment and Economics**, Vol. 13, No. 2, 2006.

**Under Review**

Liddle, B. & Messinis, G. *Revisiting carbon Kuznets curves with endogenous breaks modeling: Evidence of decoupling and saturation (but few inverted-Us) for individual OECD countries.* Revised and resubmitted at **Empirical Economics**.

Parker, S. & Liddle, B. *Energy efficiency in the Manufacturing Sector of the OECD: Analysis of price elasticities.* Minor revisions at **Energy Economics**.

Parker, S. & Liddle, B. *Economy-wide and Manufacturing Energy Productivity Transition Paths and Club Convergence for OECD and Non-OECD Countries.* Submitted for an invited special issue at **Energy Economics**.

**In Process**

Liddle, B. & Sadorsky, P. *How much do nonfossil fuels in electricity generation displace fossil fuels and reduce carbon emissions?*

Liddle, B. *Modeling Disaggregated Energy Consumption: Considering Nonlinearity, Asymmetry, and Heterogeneity by Analyzing US State-level Data*.

Parker, S. & Liddle, B. *Energy and Labor Productivity Dynamics in OECD Manufacturing.*

**Invited Presentations**

Liddle, B. *Some Empirical Checks for IAM Models: Current Income-Emissions Elasticities and the Displacement of Fossil Fuels and Carbon Emissions*. Presented at the IAM Group Meeting, National Center for Atmospheric Research. Boulder, CO, December 11, 2015.

Liddle, B. & Messinis, G. *Revisiting environmental Kuznets curves (CO2 and SO2) with endogenous breaks modeling for individual OECD countries.* Presented at the Energy Studies Institute, National University of Singapore, July 20, 2015.

Liddle, B. *Progress toward Energy Intensity Reduction Goal*. Presented at 48th APEC Energy Working Group, Port Moresby, Papua New Guinea, November 20, 2014.

Liddle, B. *APERC Studies on Energy Cooperation in APEC*. Presented at Asian Energy Cooperation: 9th International Conference. Irkutsk, Russia September 23, 2014.

Liddle, B. *Nonlinearities in the GDP-carbon relationship*. Presented at the NCAR IAM Group Annual Meeting, National Center for Atmospheric Research. Boulder, CO, August 20, 2013.

Liddle, B. *Energy Intensity Trends and Convergence*. Presented at Energy Modeling Forum 25, 3rd Meeting, Washington, DC, October 29, 2009.

Liddle, B. *Understanding and Projecting “Consumption-Based” Environmental Impact.* Presented at Hubert H. Humphrey Institute of Public Affairs Open Forum, University of Minnesota, May 6, 2003.

**Conference Presentations & Proceedings**

Liddle, B. *Modeling Disaggregated Energy Consumption: Considering Nonlinearity, Asymmetry, and Heterogeneity by Analyzing US State-level Data*. To be presented at the 1st IAEE Eurasian Conference, Baku, Azerbaijan, August 28-31, 2016.

Liddle, B. & Messinis, G. *Revisiting environmental Kuznets curves (CO2 and SO2) with endogenous breaks modeling for individual OECD countries.* Presented at the 11th Econometric Society World Congress, Montreal, Canada, August 20, 2015.

Liddle, B. & Messinis, G. *Revisiting carbon Kuznets curves with endogenous breaks modeling: Evidence of decoupling and saturation (but few inverted-Us) for individual OECD countries.* Presented at the 2015 International Energy Workshop, Abu Dhabi, June 4, 2015.

Liddle, B. & Messinis, G. *Revisiting carbon Kuznets curves with endogenous breaks modeling: Evidence of decoupling and saturation (but few inverted-Us) for individual OECD countries.* Presented at the 38th IAEE International Conference, Antalya, Turkey, May 27, 2015.

Liddle, B. & Sadorsky, P. *How Much Do Nonfossil Fuels in Electricity Generation Displace Fossil Fuels and Reduce Carbon Emissions?* Presented at the 4th IAEE Asian Conference, Beijing, China, September 20, 2014.

Liddle, B. & Lung, S. *Energy Consumption and GDP Causality: New Evidence from Disaggregated Data, Panel Cointegration, and Developed and Developing Countries.* Presented at the 35th IAEE International Conference, Perth, Australia, June 26, 2012.

Liddle, B. *The importance of energy quality in energy intensive manufacturing: Evidence from panel cointegration and panel FMOLS.* Presented at the 30th USAEE/IAEE North American Conference, Washington, DC, October 11, 2011.

Liddle, B. *Breaks and Trends in OECD Countries’ Energy-GDP and Carbon-GDP Ratios.* Presented at the 55th Australian Agriculture and Resource Economics Society National Conference, Melbourne, Australia, February 10, 2011.

Liddle, B. *Analyzing Energy Consumption, Economic Growth, and Urbanization.* Presented at the 11th IAEE European Conference, Vilnius, Lithuania, August 26, 2010.

Liddle, B. *Revisiting World Energy Intensity Convergence: Regional Differences and Institutional Influences*. Presented at the International Energy Workshop, Venice, Italy, June 19, 2009.

Liddle, B. *Breaks and Trends in and Convergence among OECD Countries’ Energy-GDP Ratios*. Presented at the 3rd Atlantic Workshop on Energy and Environmental Economics, University of Vigo, A Toxa, Galicia, Spain, July 4, 2008.

Liddle, B. *How Tied are Energy and GDP? Reconsidering Energy—GDP Cointegration and Causality for Disaggregated OECD Country Data*. Presented at 8th Biennial Conference of the International Society for Ecological Economics, Montreal, Canada, July 14, 2004.

Liddle, B. *Environmental Kuznets Curves: Revisited for Regional Pollutants.* Presented at the 4th Biennial Conference of the International Society for Ecological Economics, Boston, MA, August 4-7, 1996.

1. **Transport & Energy/Environment**

**Peer Reviewed Journals**

Liddle, B. & Lung, S. *The Endogeneity of OECD Gasoline Taxes: Evidence from Pair-wise, Heterogeneous Panel Long-run Causality Tests.* **Transportation Research A: Policy and Practice**, Vol. 73, 2015.

Liddle, B. *Urban Transport Pollution: Revisiting the Environmental Kuznets Curve*. **International Journal for Sustainable Transportation**, Vol. 9, 2015.

Liddle, B. *Urban Density and Climate Change: A STIRPAT Analysis using City-level Data*. **Journal of Transport Geography**, Vol. 28, 2013.

Liddle, B. *The Systemic, Long-run Relation among Gasoline Demand, Gasoline Price, Income, and Vehicle Ownership in OECD Countries: Evidence from Panel Cointegration and Causality Modeling*. **Transportation Research D: Transport and Environment**, Vol. 17, 2012.

Liddle, B. *Long-Run Relation among Transport Demand, Income, and Gasoline Price for the US.* **Transportation Research D: Transport and Environment**, Vol. 14, 2009.

Moavenzadeh,F. & Liddle, B. *Policy and Institutional Measures for Reduction of Transport Generated Pollution*. **Journal of Urban Technology**, Vol. 6, No. 1, April 1999.

**Book Chapters**

From **Future Cities: Dynamics and Sustainability**, Kluwer Academic Publishers, 2002.

Liddle, B. *&* Moavenzadeh,F. *Towards Sustainable Urban Transport: Finding Synergies between Lowering Local and Global Impacts*.

**Invited Presentations**

Liddle, B. *Transport, Urban Density, and the Environment: Energy and Emissions Implications*. Presented at the Workshop on Developing a Low Carbon Roadmap for China’s Cities. Beijing, China. September 24, 2012.

Liddle, B. *Driving Transport Energy: Urban Density, Gas Price, and Fuel Efficiency.* Presented at Florida International University, Department of Earth and Environment seminar series, Miami, FL, March 7, 2012.

Liddle, B. *Transport, Urban Density and the Environment.* Presented at National Center for Atmospheric Research, Boulder, CO, October 25, 2011.

Liddle, B. *Population and Development Impacts on Transport Energy Use.* Presented at Department of Economics & Transportation Logistics, North Carolina A & T State University, June 27, 2006.

Liddle, B. *Towards Sustainable Transport.* Presented at Nishimatsu Construction Co., LTD., Tokyo, Japan, January 21, 1999.

Moavenzadeh,F. & Liddle, B. *Institutional Arrangements for Reducing Transport Emissions.* Presented at Transport Emissions Reduction Seminar. The World Bank, Washington, DC, September 14, 1998.

**Conference Presentations & Proceedings**

Liddle, B. *Urban Density and Climate Change: A STIRPAT Analysis using City-level Data*. Presented at the 41st Australian Conference of Economists, Melbourne, Australia, July 9, 2012.

Liddle, B. & Lung, S. *Why Fuel Prices Differ Revisited: Does Fuel Demand Explain Fuel Taxes In OECD/Democratic Countries.* Presented at the 17th Conference of the European Association of Environmental and Resource Economists, Amsterdam, Netherlands, June 25, 2009.

Liddle, B. & Lung, S. *Why Fuel Prices Differ Revisited: Does Fuel Demand Explain Fuel Taxes In OECD/Democratic Countries.* Presented at the 2nd IAEE Asian Conference, Perth, Australia, November 7, 2008.

Liddle, B. *Long-Run Relation among Motor Fuel Use, Vehicle Miles Traveled, Income, and Gas Price for the US*. Presented at the 27th USAEE/IAEE North American Conference, Houston, TX, September 19, 2007.

Liddle, B. *Long-Run Relation among Motor Fuel Use, Vehicle Miles Traveled, Income, and Gas Price for the US*. Presented at the EcoMod Conference on Energy and Environmental Modeling, Moscow, Russia, September 14, 2007.

1. **Population-Development-Environment Simulation Modeling**

**Peer Reviewed Journals**

Liddle, B. *Sustainable Development and Globalization in a World with Unequal Starting Points.* **Review of Urban and Regional Development Studies**, Vol. 14, No. 3, November 2002.

Liddle, B. *Free Trade and the Environment-Development System*. **Ecological Economics**, Vol. 39, No. 1, October 2001.

Liddle, B. *Population Growth, Age Structure, and Environmental Impact*. **Population and Environment**, Vol. 21, No. 4, March 2000.

**Peer Reviewed Book Chapters**

Liddle, B. *Demographic Dynamics and Sustainability: Insights from an Integrated, Multi-country Simulation Model.* In **New Challenges for Sustainable Development in Millennia**, UN NGO Policy Series No. 3, 2003.

Liddle, B. *Sustainable Development and Globalization in a World with Unequal Starting Points.* In **Computable General Equilibrium Approaches in Urban and Regional Policy Studies**, World Scientific Publishing Co., 2006.

**Unpublished**

Liddle, B. *The Challenge of Sustainability in a Global System: Documentation of a Transdisciplinary, Multi-country, Dynamic Simulation Model.* MPIDR Working Paper, Rostock, Germany, 2003.

**Invited Presentations**

Liddle, B. *Challenge of Sustainability in a Global System.* Presented at the New England Complex Systems Institute. Cambridge, MA, September 8, 2010.

Liddle, B. *Challenge of Sustainability in a Global System.* Presented at International Institute for Applied Systems Analysis, Laxenburg, Austria, February 15, 2007.

Liddle, B. *Sustainable Development and Globalization in a World with Unequal Starting Points.* Presented at The Center for Global Trade Analysis, Department of Agricultural Economics, Purdue University, March 30, 2006.

Liddle, B. *Sustainability Dynamics in a World with Unequal Starting Points: A Transdisciplinary, Multi-Country Simulation Model.* CNA Corporation, Alexandria, VA, April 9, 2004.

Liddle, B. *Sustainability Dynamics in a World with Unequal Starting Points: Insights from a Transdisciplinary, Multi-country Simulation Model.* Presented at the Conference of the section "Modellbildung und Simulation" of the "Deutsche Gesellschaft für Soziologie," Rostock, Germany, October 17, 2003.

Liddle, B. *Sustainability Dynamics in a World with Unequal Starting Points: A Transdisciplinary, Multi-Country Simulation Model.* Presented at Department of Geography Colloquium, University of California at Santa Barbara, February 25, 2003.

Liddle, B. *The Population-Development Nexus: Insights from a Multi-country Simulation Model.* Presented at 2nd Workshop on Population and the Environment: Modeling and Simulating this Complex Interaction, Max Planck Institute for Demographic Research, Rostock, Germany, May 18, 2001.

Liddle, B. & Rothenberg, J. *A Model of the Environmental, Economic, and Social Sustainability of the Global System*. Presented at Environmental Economics and Policy Seminar, Kennedy School of Government, Harvard University, Cambridge, MA, April 22, 1998.

**Conference Presentations & Proceedings**

Liddle, B. *Sustainable Development and Globalization in a World with Unequal Starting Points.* Presented at 7th Annual Conference of Global Economic Analysis, Washington, DC, June 19, 2004.

Liddle, B. *Demographic Dynamics and Sustainability: Insights from an Integrated, Multi-country Simulation Model.* Presented at the World Forum on Sustainable Development, Johannesburg, South Africa, August 27, 2002.

Liddle, B. *Sustainable Development and Globalization in a World with Unequal Starting Points.* Presented at the 3rd International Conference on Policy Modeling, Brussels, Belgium, July 5, 2002.

Liddle, B. *Free Trade and the Environment-Development System*. Presented at First World Congress of Environmental and Resource Economists, Venice, Italy, June 26, 1998.

1. **Population & Development**

**Peer Reviewed Journals**

Liddle, B. & Messinis, G. *Which comes First Urbanization or Economic Growth? Evidence from Heterogeneous Panel Causality Tests.* **Applied Economics Letters**, Vol. 22, 2015.

Liddle, B. *Demographic Influences on Economic Resiliency: Revisiting the Developing Country Growth Collapse of the 1970’s and 1980’s.* **Journal of International Development**, Vol. 23, 2011.

**Invited Presentations**

Liddle, B. *Demographic Influences on Economic Resiliency: Analyzing the Developing Country Growth Collapse of the 1970’s and 1980’s*. Presented at 3rd Workshop on Demographic Macroeconomic Modeling, Max Planck Institute for Demographic Research, Rostock, Germany, September 20, 2002.

Liddle, B. *Developing Country Growth Collapse Revisited: Determining Demographic Influences.* School of the Environment, University of Leeds, Leeds, UK, May 8, 2002.

**Conference Presentations & Proceedings**

Liddle, B. *Developing Country Growth Collapse Revisited: Determining Demographic Influences.* Poster presented at European Population Conference 2003, Warsaw, Poland, August 29, 2003.

Liddle, B. *Analyzing the Developing Country Growth Collapse of the 1970s and 1980s: Demographic Influences and Regional Differences.* Presented at Population Association of America 2003 Annual Meeting, Minneapolis, MN, May 3, 2003.

1. **Other Environment/Energy/Sustainability**

**Peer Reviewed Journal**

Moavenzadeh,F. & Liddle, B. *The Sustainability of the Urban Environment: A Case for Energy Efficiency in the Building Sector*. **Journal of Urban Technology**, Vol. 4, No. 2, August 1997.

**Book Chapters**

From **Future Cities: Dynamics and Sustainability**, Kluwer Academic Publishers, 2002.

Liddle, B. *&* Moavenzadeh,F. *The Sustainability Challenge for Climate Change: Balancing Inter- and Intragenerational Equity*.

Liddle, B. *&* Finch, M. *‘Green’ Buildings: Private and Public Gains*.

Liddle, B. *&* Moavenzadeh,F. *Cities: Challenges and Opportunities for Sustainability.*

**Conference Presentations & Proceedings**

Liddle, B. *Sustainability and Energy Consumption in the Building Sector*. Proceedings of the 4th International Council for Building Research Studies and Documentation Symposium on Useroriented and Cost Effective Management, Maintenance and Modernization of Building Facilities, Helsinki, Finland, September 2-4, 1996.

Liddle, B. *Construction for Sustainability and the Sustainability of the Construction Industry*. Proceedings of the First International Conference on Sustainable Construction, International Council for Building Research Studies and Documentation, Tampa, FL, November 6-9, 1994.

1. **Privatization**

**Peer Reviewed Journals**

Liddle, B. *The Privatization Decision and Civil Engineering Projects*. **Journal of Management in Engineering**, Vol. 13, No. 3, May/June 1997.

**Other Journal Publications**

Moavenzadeh,F. & Liddle, B. *Infrastructure and the Privatization Decision*. **Construction Business Review**. March-April 1993.

**Conference Presentations & Proceedings**

Moavenzadeh,F. & Liddle, B. *Infrastructure Investment at Time of Economic Crisis.* Proceedings of Dr Tan Swan Beng Memorial Symposium: Excellence In Infrastructure Engineering, Singapore, March 18-19, 1999 (Keynote address).

Moavenzadeh,F. & Liddle, B. *Infrastructure Privatization and Economic Crisis in East Asia*. Workshop Proceedings on Asean Infrastructure and Planning and Management, Bangkok, Thailand, September 29-October 1, 1998 (Keynote address).

Liddle, B. *The Privatization Decision and Civil Engineering Projects*. Presented at the Leadership Conference, American Society of Civil Engineers 1996 Annual Convention, Washington, DC, November 13, 1996.

Liddle, B. *Privatization and Water Supply/Treatment Projects*. Proceedings of the North American Water and Environment Congress ’96, American Society of Civil Engineers, Anaheim, CA, June 22-28, 1996.

**RELATED PROFESSIONAL SERVICE, CERTIFICATION & SKILLS**

**Editorial Board**: *Advances in Energy Research; Frontiers in Energy Systems & Policy; Journal of Environmental Studies & Sciences* (founding member); *Journal of Reviews on Global Economics; Low Carbon Economy* (Associate Editor).

**Regular Referee**:*Applied Energy* (outstanding reviewer 2014-15); *Energy Economics* (outstanding reviewer 2013-14)*; Energy Policy; Journal of Environmental Studies & Sciences*.

**Occasional Referee**:*AIMS Energy; American Sociological Review; Annals of the Association of American Geographers; Applied Economics; Applied Economics Letters; Asia-Pacific Development Journal; Athens Journal of Business & Economics; Climate Change Economics; Climatic Change; Cross-Cultural Research; Ecological Economics; Ecological Indicators; Economic Modelling; Earth’s Future; Empirical Economics; Energies; Energy Efficiency; Energy Exploration & Exploitation; Energy; The Energy Journal; Engineering Construction & Architectural Management; Environment & Development Economics; Environment, Development & Sustainability; Environmental & Ecological Statistics; Environmental Engineering Science; Environmental Modelling & Software; Environmental Impact Assessment Review; Environmental Modelling & Assessment; Environmental & Resource Economics; Global Environmental Change; International Journal of Sustainable Transportation; International Review of Economics & Finance; Journal of Cleaner Production; Journal of Construction Engineering & Management; Journal of Energy Engineering; Journal of Epidemiology & Community Health; Journal of Population Economics; Journal of Regional Science; Journal of Reviews on Global Economics; Management of Environmental Quality; PLOS ONE; Population & Environment; Progress in Nuclear Energy; Regional Science & Urban Economics; Resources, Conservation & Recycling; Science; Society & Natural Resources; SpringerPlus; Sustainability; Theoretical Economics Letters; Tourism Management; Transportation Research A: Policy & Practice; Transportation Research D: Transport & Environment.*

**Book Reviewer**: *Ecological Economics.*

**Member** (current): Sigma Xi, The Scientific Research Society (elected); International Union for the Scientific Study of Population (elected); International Association for Energy Economics; Econometric Society; Association for Environmental Studies & Sciences (founding member); GTAP network; Population-Environment Research network; EcoMod Global Economic Modeling network; Athens Institute for Education & Research.

**Member** (previous/occasional): Association of Environmental & Resource Economists; International Society for Ecological Economics; Energy Modeling Forum 25; Australian Agriculture & Resource Economics Society; Population Association of America; American Society of Civil Engineers; European Association for Population Studies.

**Co-Supervisor**: Steven Parker’s doctoral committee, Economics, Victoria University, 2010- 2015 (conferred 2016).

**Scientific Committee**: Australian Conference of Economists 2012.

**Session Chair**: Australian Conference of Economists 2012, Melbourne, Australia, July 9, 2012; Conference of the International Society for Ecological Economics, Oldenburg-Bremen, Germany, August 23, 2010; World Forum on Sustainable Development, Johannesburg, South Africa, August 28, 2002; World Congress of Environmental & Resource Economists, Venice, Italy, June 27, 1998.

**Computer Skills**:Pascal, Fortran; LINDO, GAMS (optimization, CGE modeling); Eviews, Stata, RATS (econometrics); Vensim (system dynamics); DPL (decision analysis).

**Language**:Russian (elementary proficiency).