

# Jonathan P. Caulkins

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## EDUCATION

Ph.D., Operations Research, M.I.T., 1990

Thesis: "The Distribution and Consumption of Illicit Drugs: Some Mathematical Models and Their Policy Implications," Supervisor: Arnold I. Barnett

S.M., Electrical Engineering and Computer Science, M.I.T., 1989

Thesis: "Inventory and the Strategic Value of Product-Flexible Manufacturing Systems," Supervisor: Charles H. Fine

M.S., Systems Science and Mathematics, Washington University, 1987

B.S., Systems Science and Engineering, Computer Science, and Engineering & Policy, Washington University, 1987

## EXPERIENCE

- 1990 - present H. Guyford Stever Professor of Operations Research  
Carnegie Mellon University Heinz School of Public Policy & Mgmt
- 2005 - 2011 Carnegie Mellon University in Qatar
- 1999 - 2001 Founding Director of Pittsburgh Office, RAND
- 1994 - 1996 Co-director of the Drug Policy Research Center, RAND
- 1990 - present Consultant: UNODC, CIA/CNC, UKDPC, UK SOCA, BOTEK, QED, Westat, others

## RESEARCH INTERESTS

- Mathematical models of social policy problems and interventions
- Policies concerning drugs, crime, violence, delinquency, & prevention
- Optimal dynamic control, software quality, and decision making



## HONORS

Omega Rho Lecturer, INFORMS, 2014  
Barash Lecturer, Purdue University, 2012  
Plenary speaker, EURO, 2012  
British Medical Association, Best Public Health Book of the Year (co-author), 2010  
INFORMS President's Award, 2010  
INFORMS Fellow, 2010  
H. Guyford Stever Chair of Operations Research, 2010  
IFORS Distinguished Lecturer at APORS, 2009  
National Academy of Engineering's Frontiers of Engineering, 2008  
Robert Wood Johnson Foundation Health Investigator Award, 2006  
INFORMS Plenary speaker at ORPA-1 Conference in Ouagadougou, 2005  
Marschak Colloquium at UCLA, 2001  
Pittsburgh's Forty Under Forty Award, 2000  
David N. Kershaw Award, Association for Public Policy Analysis & Management, 1999  
Carnegie Mellon University Heinz School Martcia Wade Teaching Award, 1999, 2013  
National Young Investigator, 1993 - 1999  
NSF Graduate Fellowship, 1987-1990  
Tau Beta Pi, Mortar Board National Honor Society, National Merit Scholar, 1983-1987  
Langsdorf Fellowship, Washington University, 1983-1987

## Advisory Roles

Advisory Panel for the Interactive Health Communication Environmental Scan, commissioned by Jewish Healthcare Foundation of Pittsburgh (1999 – 2000)  
Advisory Board, Center for Uncertain Systems: Tools for Optimization and Management, Carnegie Mellon (2000 - 2002)  
Board of Associates, Thiel College (2000 – 2003)  
Board of Trustees, Thiel College (2003 - 2012)  
Advisory Committee, The William J. Copeland Fund and the Elmer J. Tropman Nonprofit Management Institute (2000 – 2003; 2011 - present)  
Board of Advisors, Pittsburgh Technology Council (2000 - 2001)  
Faculty Advisory Board, Institute for the Study of Information Technology and Society (InSITeS), Carnegie Mellon (2001 – 2005)  
Partnership for a Drug Free America Social Marketing Advisory Board (2002 - )  
Pennsylvania Commission on Crime and Delinquency, Public Safety Advisory Committee (2003 - 2004)  
Advisory Committee, The Forbes Funds (2003 – 2005)  
Advisory Board, *Heinz School Review* (2003 – 2005)  
National Research Council Committee on Vaccines Against Drugs of Addiction (2002 - 2003)  
Institute of Medicine Committee on Reducing Tobacco Use: Strategies, Barriers, and Consequences (2004 – 2007)  
Allegheny County Jail Collaborative Advisory Committee (2004-2007)  
PIRE Prevention Research Center Scientific Advisory Council (2004 – 2011)  
Australia's Drug Policy Modeling Program, Advisory Board (2004 - 2012)

ONDCP Data, Research, and Evaluation Committee Chair (2004 - 2008)  
National Research Council Committee on Estimating Costs to the Department of Justice of Increased Border Security Enforcement by the Department of Homeland Security (2010 - 2011)  
National Research Council Committee on Modernizing the Nation's Crime Statistics (2013 - )  
Institute of Medicine Committee on Health Implications of Raising the Minimum Age for Purchasing Tobacco Products (2013 - )  
Institute for Behavior and Health, Advisory Committee (2011 - )

## **PUBLICATIONS**

### **Books and Monographs**

Caulkins, Jonathan P., Angela Hawken, Beau Kilmer and Mark A.R. Kleiman (2012). *Marijuana Legalization: What Everyone Needs to Know*. Oxford University Press.

Kleiman, Mark A.R., Jonathan P. Caulkins, and Angela Hawken (2011). *Drugs and Drug Policy: What Everyone Needs to Know*. Oxford University Press. Spanish translation published in (2014) as *Drogas Y Políticas Sobre Drogas: Lo Que Todo El Mundo Necesita Saber*. University de Los Andes.

Thomas Babor, Jonathan Caulkins, Griffith Edwards, David Foxcroft, Keith Humphreys, Maria Medina Mora, Isidore Obot, Jurgen Rehm, Peter Reuter, Robin Room, Ingeborg Rossow, and John Strang. 2010. *Drug Policy and the Public Good*. Oxford University Press.

Grass, Dieter, Jonathan P. Caulkins, Gustav Feichtinger, Gernot Tragler, and Doris Behrens. 2008. *Optimal Control of Nonlinear Processes: With Applications in Drugs, Corruption, and Terror*. Springer.

Caulkins, Jonathan P., Rosalie Pacula, Susan Paddock, and James Chiesa. 2002. *School-Based Drug Prevention: What Kind of Drug Use Does it Prevent?* RAND, Santa Monica, CA.

Caulkins, Jonathan P., Jay Cole, Melissa Hardoby, and Donna Keyser. 2002. *Intelligent Giving: Insights and Strategies for Higher Education Donors*. RAND, Santa Monica, CA.

Gill, Brian P., Jake Dembosky, Caulkins, and Jonathan P. 2002. *A "Noble Bet" in Early Childcare and Education: Lessons from One Community's Experience*. RAND, Santa Monica, CA.

Caulkins, Jonathan P., C. Peter Rydell, Susan S. Everingham, James Chiesa, and Shawn Bushway. 1999. *An Ounce of Prevention, a Pound of Uncertainty: The*

*Cost-Effectiveness of School-Based Drug Prevention Program*, RAND, Santa Monica, CA.

Caulkins, Jonathan P., C. Peter Rydell, William L. Schwabe, and James Chiesa. 1997. *Mandatory Minimum Drug Sentences: Throwing Away the Key or the Taxpayers' Money?* RAND, Santa Monica, CA.

### **Articles in Refereed Journals**

Bond, Brittany, Jonathan P. Caulkins, Nick Scott, Beau Kilmer, and Paul Dietze. (forthcoming). Are Users' Most Recent Purchases Representative. *Drug and Alcohol Dependence*.

Kilmer, Beau, Jonathan P. Caulkins, Peter H. Reuter, and Greg Midgette. (forthcoming). Cocaine's Fall and Marijuana's Rise: Questions and Insights Based on New Estimates of Consumption and Expenditures in U.S. Drug Markets. *Addiction*.

Caulkins, Jonathan P., Gustav Feichtinger, Dieter Grass, Richard F. Hartl, Peter M. Kort, Andreas J. Novak, Andrea Seidl, and Franz Wirl (2013). A Dynamic Analysis of Schelling's Binary Corruption Model: A Competitive Equilibrium Approach. *Journal of Optimization Theory and Applications*. Doi: 10.1007/s10957-013-0420-7.

Caulkins, Jonathan P., Gustav Feichtinger, Dieter Grass, Richard F. Hartl, Peter M. Kort, Andrea Seidl (2013). When to Make Proprietary Software Open Source. *Journal of Economic Dynamics and Control*, 37(6):1182-1194.

Pacula, Rosalie Liccardo, Beau Kilmer, Alexander C. Wagenaar, Frank J. Chaloupka, and Jonathan P. Caulkins (2014). Developing Public Health Regulations for Marijuana: Lessons from Alcohol and Tobacco. *American Journal of Public Health*.

Caulkins, Jonathan P., Susan Everingham, Beau Kilmer, and Greg Midgette (2013). The whole is just the sum of its parts: Limited polydrug use among the "big three" expensive drugs in the United States. *Current Drug Abuse Reviews*. 6(2):919-97.

Burns, Rachel Melissa, Jonathan P. Caulkins, Susan S. Everingham, and Beau Kilmer (2013). Statistics on cannabis use skew perceptions of cannabis use. *Frontiers in Psychiatry*. 4:138. doi: 10.3389/fpsy.2013.00138

Caulkins, Jonathan P., Angela Hawken, Beau Kilmer, Mark Kleiman, Katherine Pfrommer, Jacob Pruess, and Timothy Shaw (2013). High tax states: Options for gleaning revenue from legal cannabis. *Oregon Law Review*, 91(4):1041-1068. Reprinted in *Criminal Law and the Regulation of Vice, 2<sup>nd</sup> Edition*, Franklin E. Zimring and Bernard Harcourt (eds.), Thomson West (forthcoming).

Caulkins, Jonathan P., Gustav Feichtinger, Dieter Grass, Richard F. Hartl, Peter M. Kort, Andreas J. Novak, Andrea Seidl (2013). Leading Bureaucracies to the Tipping Point: An Alternative Model of Multiple Stable Equilibrium Levels of Corruption. *European Journal of Operations Research*. **225**: 541-546, Doi:10.1016/j.ejor.2012.10.026.

Caulkins, Jonathan P., Gustav Feichtinger, Richard F. Hartl, Peter M. Kort, Andreas J. Novak, Andrea Seidl (2013). Long Term Implications of Drug Policy Shifts: Anticipating and Non Anticipating Consumers. *Annual Reviews in Control*, 37(1):105-115.

Caulkins, Jonathan P., Gustav Feichtinger, Richard F. Hartl, Peter M. Kort, Andreas J. Novak, Andrea Seidl (2013). Multiple Equilibria and Indifference-Threshold Points in a Rational Addiction Model. *Central European Journal of Operations Research*, 21(3):507-522.

Paddock, Susan M., Beau Kilmer, Jonathan P. Caulkins, Marika J. Booth and Rosalie L. Pacula (2012). An Epidemiological Model for Examining Marijuana Use over the Life Course. *Epidemiology Research International*. Article ID: 520894. Doi:10.1155/2012/520894. PMCID: PMC3518305.

Caulkins, Jonathan P., Anna Kasunic, and Michael A.C. Lee (2012). Marijuana Legalization: Lessons from the 2012 State Proposals. *World Medical and Health Policy*. 4(3):4-34. Reprinted in *Policy Diagnosis: Public Policy Insights for Public Health Cures*, Bonnie Stabile (ed.), Westphalia Press, Washington DC, pp.67-96.

Caulkins, Jonathan P.; Coulson, Carolyn C.; Farber, Christina; and Vesely, Joseph V. (2012) Marijuana Legalization: Certainty, Impossibility, Both, or Neither?, *Journal of Drug Policy Analysis*, 5(1):1-27.

Strang, John, Thomas Babor, Jonathan P. Caulkins, Benedikt Fischer, David Foxcroft, and Keith Humphreys (2012). Drug Policy and the Public Good: evidence for effectiveness of interventions. *Lancet*. 379(9810):71-83.

Coulson, Carolyn and Jonathan P. Caulkins (2012). Scheduling of Newly Emerging Drugs: A Critical Review of Decisions Over 40 Years. *Addiction*. 107(4):766-773.

Caulkins, Jonathan P. and Brittany Bond (2012). Marijuana Price Gradients: Implications for Exports and Export-Generated Tax Revenue for California After Legalization. *Journal of Drug Issues*. 42(1):28-45.

Caulkins, Jonathan P., Beau Kilmer, Robert J. MacCoun, Rosalie Liccardo Pacula, and Peter Reuter. 2012. Design Considerations for Legalizing Cannabis:

Lessons Inspired by Analysis of California's Proposition 19. *Addiction*. 107(5): 865-871 (Response to commentaries also published as pp.876-877.)

Caulkins, Jonathan P., Peter Reuter, and Carolyn Coulson. 2011. Basing Scheduling Decisions on Scientific Rankings of Drugs' Harmfulness: False Promise from False Premises. *Addiction*. 106: 1886-1890 (Response to commentaries also published.)

Caulkins, Jonathan P. and Carolyn Coulson (2011). To Schedule or not to Schedule: How Well Do We Decide? *Journal of Global Drug Policy and Practice*. 5(4).

Kilmer, Beau, Jonathan P., Caulkins, Rosalie Liccardo Pacula, and Peter Reuter. 2011. Bringing Perspective to Illicit Markets: Estimating the Size of the U.S. Marijuana Market. *Drug and Alcohol Dependence*. 119, 153-160.

Caulkins, Jonathan P., Gustav Feichtinger, Dieter Grass, Richard F. Hartl, Peter M. Kort, and Andrea Seidl. 2011. Optimal Pricing of a Conspicuous Product During a Recession that Freezes Capital Markets. *Journal of Economic Dynamics and Control*. 35:163-174.

Zeiler, Irmgard, Jonathan P. Caulkins, and Gernot Tragler. 2011. Optimal Control of Interacting Systems with DNSS Property: The Case of Illicit Drugs. *Journal of Economic Behavior and Organizations*, 78:60-73. DOI: 10.1016/j.jebo.2010.12.008.

Reuter, Peter, Rosalie Liccardo Pacula, and Jonathan P. Caulkins. 2011. RAND's Drug Policy Research Center. *Addiction*. 106(2):253-259. DOI: 10.1111/j.1360-0443.2010.03017.x.

Caulkins, Jonathan P. (2011). The Global Recession's Effect on Drug Demand – Diluted by Inertia. *International Journal of Drug Policy*, 22:374-375. doi:10.1016/j.drugpo.2011.02.005.

Zeiler, Irmgard, Jonathan P. Caulkins, Dieter Grass, and Gernot Tragler. 2010. Keeping Options Open: an Optimal Control Model with Trajectories that Reach a DNSS Point in Positive Time. *SIAM Journal on Control and Optimization*. 48(6):3698-3707.

Caulkins, Jonathan P. and Robert L. DuPont. 2010. Is 24/7 Sobriety a Good Goal for Repeat DUI Offenders? *Addiction*. 105:575-577.

Caulkins, Jonathan P. and David Baker. 2010. Cobweb Dynamics and Price Dispersion in Illicit Drug Markets. *Socio-Economic Planning Sciences*. 44(4): 220-230. doi:10.1016/j.seps.2010.06.001.

Caulkins, Jonathan P. 2010. Might Randomization in Queue Discipline Be Useful When Waiting Cost is a Concave Function of Time? *Socio-Economic Planning Sciences*. 44:19-24, DOI: [10.1016/j.seps.2009.04.001](https://doi.org/10.1016/j.seps.2009.04.001).

Caulkins, Jonathan P., Richard F. Hartl, and Peter M. Kort. 2010. Delay Equivalence in Capital Accumulation Models. *Journal of Mathematical Economics*. 46: 1243-1246. DOI:10.1016/j.jmateco.2010.08.021.

Caulkins, Jonathan P. and Nancy Nicosia. 2010. What Economics Can Contribute to the Addiction Sciences. *Addiction*, 105(7):1156-1163. DOI: 10.1111/j.1360-0443.2010.02915.x.

Gallupe, Owen, Martin Bouchard, and Jonathan P Caulkins. 2010. No change is a good change? Restrictive deterrence in illegal drug markets. *Journal of Criminal Justice*. 39:81-89 doi:[10.1016/j.jcrimjus.2010.12.002](https://doi.org/10.1016/j.jcrimjus.2010.12.002).

Caulkins, Jonathan P., Gustav Feichtinger, Gernot Tragler, and Dagmar Wallner. 2010. “When in a Drug Epidemic Should the Policy Objective Switch from Use Reduction to Harm Reduction.” *European Journal of Operational Research*. Vol. 201, 301-318. DOI: 10.1016/j.ejor.2009.03.015.

Caulkins, Jonathan P., Dieter Grass, Gustav Feichtinger, and Gernot Tragler. 2009. Optimal Control of Terrorism and Global Reputation: A Case Study with Novel Threshold Behavior. *Operations Research Letters*. 37: 387-391. doi:10.1016/j.orl.2009.07.003.

Caulkins, Jonathan P. and Ryan Menefee. 2009. Is Objective Risk All that Matters When It Comes to Drugs? *Journal of Drug Policy Analysis*. Vol. 2, Issue 1, Article 1. DOI: 10.2202/1941-2851.1005, available at [www.bepress.com/jdpa/vol2/iss1/art1](http://www.bepress.com/jdpa/vol2/iss1/art1).

Caulkins, Jonathan P., Honora Burnett, and Edward Leslie. 2009. “How Illegal Drug Enter and Island Country: Insights from Interviews with Incarcerated Smugglers.” *Global Crime*. Vol. 10, No. 1, pp.66-93. Reprinted in *Illegal Markets and the Economics of Organized Crime*, Martin Bouchard and Chris Wilkins (eds)., Routledge, 2010.

Caulkins, Jonathan P., Benjamin Gurga, and Christopher Little. 2009. “Economic Analysis of Drug Transaction ‘Cycles’ Described by Incarcerated UK Drug Dealers.” *Global Crime*. Vol. 10, No. 1, pp. 94-112. Reprinted in *Illegal Markets and the Economics of Organized Crime*, Martin Bouchard and Chris Wilkins (eds)., Routledge, 2010.

Caulkins, Jonathan P., Gernot Tragler, and Dagmar Wallner. 2009. “Optimal Timing of Use versus Harm Reduction In a Drug Epidemic Model.”



*International Journal of Drug Policy*. 20(6):480-487. DOI: [dx.doi.org/10.1016/j.drugpo.2009.02.010](https://doi.org/10.1016/j.drugpo.2009.02.010).

Caulkins, Jonathan P. and Peter Reuter. 2009. "Toward a Harm Reduction Approach to Enforcement." *Safer Communities*, Vol. 8, No. 1, pp.9-23.

Bultmann, Roswitha, Jonathan P. Caulkins, Gustav Feichtinger, and Gernot Tragler. 2008. "How Should Drug Policy Respond to Market Disruptions." *Contemporary Drug Problems*. 35(2&3):371-395.

Caulkins, Jonathan P. 2008. "Implications of Inertia for Assessing Drug Control Policy: Why Upstream Interventions May not Receive Due Credit." *Contemporary Drug Problems*, 35(2-3):347-369.

Caulkins, Jonathan P. and Haijing Hao (2008) "Modeling Drug Market Supply Reductions: Where Do All the Drugs Not Go?" *Journal of Policy Modeling*. 30(2), pp. 251-270, DOI: 10.1016/j.polmod.2007.04.003.

Caulkins, Jonathan P., Dieter Grass, Gustav Feichtinger, and Gernot Tragler. 2008. "Optimizing Counter-Terror Operations: Should One Fight Fire with 'Fire' or 'Water'?" *Computers and Operations Research*, 35(6):1874-1885 doi: 10.1016/j.cor.2006.09.017.

Caulkins, Jonathan P., Emily Eelman, Minoli Ratnatunga, and David Schaarsmith. 2008. "Operations Research & Public Policy for Africa: Harnessing the Revolution in Management Science Instruction." *International Transactions in Operations Research*, 15:151-171.

Behrens, Doris A., Marion S. Rauner, and Jonathan P. Caulkins (2008). An Epidemic Model of the Spread of Hepatitis C via Commercial Tattoo Parlors: Implications for the Timing of Public Health Interventions. *OR Spectrum Special Issue on Bioinformatics and OR*, 30(2):269-288 DOI: 10.1007/s00291-007-0090-7.

Caulkins, Jonathan P. 2007. "The Need for Dynamic Drug Policy." *Addiction*. 102(1):4-7.

Caulkins, Jonathan P., Gustav Feichtinger, Gernot Tragler, and Vladimir Veliov. 2007. "Cycles of Violence: A Dynamic Control Analysis." *European Journal of Operations Research*. 181(1):350-361.

Caulkins, Jonathan P., Gustav Feichtinger, Dieter Grass, and Gernot Tragler. 2007. "Bifurcating DNS Thresholds in a Model of Organizational Bridge Building." *Journal of Optimization Theory and Applications*. 133(1): 19-35. DOI: 10.1007/s10957-007-9180-6.

Caulkins, Jonathan P., Paul Dietze, and Alison Ritter. 2007. "Dynamic Compartmental Model of Trends in Australian Drug Use." *Healthcare Management Science*. Vol 10., No. 2, pp.151-162. DOI: 10.1007/s10729-007-9012-0.

Caulkins, Jonathan P., Erica Layne Morrison, and Timothy Weidemann (2007) Spreadsheet Errors and Decisionmaking: Evidence from Field Interviews. *Journal of Organizational and End User Computing*. 19(3):1-24. Reprinted in *End User Computing: Concepts, Methodologies, Tools and Applications*, Steve Clarke (Ed.), Information Science Reference, Hershey, PA, 2008, pp.856-874.

Moore, Timothy, Ritter, Alison, & Caulkins, Jonathan P. (2007) A cost effectiveness comparison of three policy options for reducing heroin dependency. *Drug and Alcohol Review*, 26(4), 369-378.

Caulkins, Jonathan P., Eric Hough, Nancy Mead, and Hassan Osman. 2007. "Using Integer Programming to Optimize Investments in Security Countermeasures: A Practical Tool for Fixed Budgets." *IEEE Security & Privacy*. Sept/Oct issue, pp.24-27. Published online by Building Security In at <https://buildsecurityin.us-cert.gov/daisy/bsi/articles/best-practices/requirements/552.html>.

Caulkins, Jonathan P. 2007. Price and Purity Analysis for Illicit Drugs: Data and Conceptual Issues. *Drug and Alcohol Dependence*. 90S, S61-S68. DOI 10.1016/j.drugalcdep.2006.08.014.

Caulkins, Jonathan P., Richard F. Hartl, Peter Kort, and Gustav Feichtinger (2007) Explaining Fashion Cycles: Imitators Chasing Innovators in Product Space. *Journal of Economic Dynamics and Control*. 31:1535-1556.

Caulkins, Jonathan P., Gustav Feichtinger, Josef Haunschmied, and Gernot Tragler. 2006. "Quality Cycles and the Strategic Manipulation of Value." *Operations Research*. Vol. 54, No. 4, pp.666-677.

Moore, Timothy J. and Jonathan P. Caulkins (2006) "How Cost-Of-Illness Studies Can Be Made More Useful For Illicit Drug Policy Analysis." *Applied Health Economics and Health Policy*, Vol. 5, No. 2, pp.75-85.

Caulkins, Jonathan P. and Sara Chandler (2006) Long-Run Trends in Incarceration of Drug Offenders in the US. *Crime and Delinquency*. Vol 52, No. 4, pp.619-641, DOI: 10.1177/0011128705284793.

Caulkins, Jonathan P., Alessandra Gragnani, Gustav Feichtinger, and Gernot Tragler (2006) High and Low Frequency Oscillations in Drug Epidemics. *International Journal of Bifurcation and Chaos*. 16(11):3275-3289.

Caulkins, Jonathan P., Peter Reuter, and Lowell Taylor (2006) Can Supply Restrictions Lower Price? Violence, Drug Dealing, and Positional Advantage. *Contributions to Economic Analysis and Policy*. 5(1), Article 3. <http://www.bepress.com/bejeap/contributions/vol5/iss1/art3>.

Kort, Peter M., Jonathan P. Caulkins, Richard F. Hartl, and Gustav Feichtinger. 2006. "Brand Integrity and Brand Dilution in the Fashion Industry." *Automatica*. Vol. 42(8), pp.1363-1370.

Caulkins, Jonathan P. and Rosalie Pacula. 2006. "Marijuana Markets: Inferences from Reports by the Household Population." *Journal of Drug Issues*. Vol. 36, No. 1, pp.173-200.

Arora, Ashish, Jonathan P. Caulkins, and Rahul Telang. 2006. "Sell First, Patch Later: Impact of Patching on Software Quality." *Management Science*. Vol. 52, No. 3, pp.465-471.

Caulkins, Jonathan P., Wenxuan Ding, George Duncan, Ramayya Krishnan, Eric Nyberg. 2006. A Method for Managing Access to Web Pages: Filtering by Statistical Classification (FSC) Applied to Text. *Decision Support Systems*, 42(1):149-161

Caulkins, Jonathan P. and Peter Reuter. 2006. "Illicit Drug Markets and Economic Irregularities." *Socio-Economic Planning Sciences*. 40:1-14. DOI information: 10.1016/j.seps.2004.08.002.

Caulkins, Jonathan P., Gustav Feichtinger, Caius Gavrila, Alfred Greiner, Josef L. Haunschmied, and Gernot Tragler. 2006. "How Much to Spend on Drug Substitute Programs? A Dynamic Cost-Benefit Analysis." *JOTA*. 128(2), 279-294. DOI: 10.1007/s10957-006-9016-9.

Caulkins, Jonathan P., Gustav Feichtinger, Dieter Grass, Michael Johnson, Gernot Tragler, Yuri Yegorov. 2005. "Placing the Poor While Keeping the Rich in Their Place: Separating Strategies for Optimally Managing Residential Mobility and Assimilation." *Demographic Research*. Vol. 13, Article. 1, pp.1-34.

Caulkins, Jonathan P. and Eric Sevigny. 2005. "How Many People Does the US Incarcerate for Drug Use, and Who Are They?" *Contemporary Drug Problems*. 32(3):405-428.

Caulkins, Jonathan P., Gustav Feichtinger, Dieter Grass, and Gernot Tragler. 2005. "A Model of Moderation: Finding Skiba Points on a Slippery Slope." *CEJOR*. Vol. 13, Issue No. 1, pp.45-64.

Caulkins, Jonathan P., Gustav Feichtinger, Michael Johnson, Gernot Tragler, Yuri Yegorov. 2005. "Skiba Thresholds in a Model of Controlled Migration."

*Journal of Economic Behavior and Organizations*, Vol. 57, pp.490-508. DOI information: 10.1016/j.jebo.2005.04.008.

Gavrila, Caius, Jonathan P. Caulkins, Gustav Feichtinger, Gernot Tragler, and Richard F. Hartl. 2005. "Managing the Reputation of an Award to Motivate Performance." *Mathematical Methods of Operations Research*. Vol. 61, pp.1-22.

Reuter, Peter and Jonathan P. Caulkins. 2004. "Illegal Lemons: Price Dispersion in Cocaine and Heroin Markets." *Bulletin on Narcotics*. Vol. LVI, No. 1-2, pp.141-165.

Caulkins, Jonathan P., Doris A. Behrens, Claudia Knoll, Gernot Tragler, and Doris Zuba. 2004. "Markov Chain Modeling of Initiation and Demand: The Case of the US Cocaine Epidemic." *Health Care Management Science*. Vol. 7, No. 4, 319-329. DOI: [10.1007/s10729-004-7540-4](https://doi.org/10.1007/s10729-004-7540-4).

Sevigny, Eric and Jonathan P. Caulkins. 2004. "Kingpins or Mules? An Analysis of Drug Offenders Incarcerated in Federal and State Prisons." *Criminology and Public Policy*, Vol. 3, No. 3, pp.401-434.

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Caulkins, Jonathan P., Rosalie Pacula, Susan Paddock, and James Chiesa. 2004. "What We Can – And Can't – Expect from School-Based Drug Prevention." *Drug and Alcohol Review*, Vol. 23(1), pp.79-87.

Almeder, Christian, Jonathan P. Caulkins, Gustav Feichtinger, and Gernot Tragler. 2004. "An Age-Structured Single-State Initiation Model – Cycles of Drug Epidemics and Optimal Prevention Programs." *Socio-Economic Planning Sciences*, Vol. 38, No. 1, pp.91-109.

Winkler, Doris, Jonathan P. Caulkins, Doris Behrens, and Gernot Tragler. 2004. "Estimating the Relative Efficiency of Various Forms of Prevention at Different Stages of a Drug Epidemic." *Socio-Economic Planning Sciences*, Vol. 38, No. 1, pp.43-56.

Caulkins, Jonathan P. and Robert MacCoun. 2003. "Limited Rationality and the Limits of Supply Reduction." *Journal of Drug Issues*. Vol. 33, No. 2, pp.433-464.

Behrens, Doris A., Jonathan P. Caulkins, Gernot Tragler, and Gustav Feichtinger. 2002. "Why Present-Oriented Societies Undergo Cycles of Drug Epidemics." *Journal of Economic Dynamics and Control*, Vol. 26, No. 6, pp.919-936.

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Caulkins, Jonathan P. 2001. "How Large Should the Strike Zone Be in "Three Strikes and You're Out" Sentencing Laws?" *Journal of Quantitative Criminology*. Vol. 17, No. 3.

Caulkins, J.P. 2001. "When Parametric Sensitivity Analysis Isn't Enough," *INFORMS Transactions on Education*, Vol. 1, No. 3, pp.88-101, <http://ite.informs.org/Vol1No3/caulkins/caulkins.html>.

Tragler, Gernot, Jonathan P. Caulkins, and Gustav Feichtinger. 2001. "Optimal Dynamic Allocation of Treatment and Enforcement in Illicit Drug Control." *Operations Research* Vol. 49 No. 3, pp.352-362.

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Kleiman, Mark A.R., Jonathan P. Caulkins, Angela Hawken, and Beau Kilmer. 2012. Eight Questions for Drug Policy Research. *Issues in Science and Technology*. Summer. <http://www.issues.org/28.4/kleiman.html>.

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Caulkins, Jonathan P. 2008. "Is Responsible Drug Use Possible?" *Cato Unbound*, on-line blog forum (<http://www.cato-unbound.org/archives/>).

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Caulkins, Jonathan P. 2002. "Insights Australia Should and Should Not Take from US Drug Policy." *Sydney Institute Papers*, Vol. 14, No. 1, pp.1-6.

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Caulkins, Jonathan P. 1997. "Sense and Sensitivity Analysis," *OR/MS Today*, Vol. 24, No.6, pp.24-28.

Caulkins, Jonathan P. 1996. "Color-Blind Policies Not Enough: A Case in Favor of Affirmative Action," *OR/MS Today*, Vol. 23, No. 4, pp.25-27. [www.lionhrtpub.com/orms/orms-8-96/color-blind.html](http://www.lionhrtpub.com/orms/orms-8-96/color-blind.html).

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Caulkins, Jonathan P. 1993. "Judge's Commentary: The Coal Tipple Operations Papers." *The UMAP Journal*, Vol. 14, No. 3, pp.275-276.

Caulkins, Jonathan P. 1993. Preface for special issue of *Mathematical and Computer Modelling* on drug markets and drug policy, Vol. 17, No. 2, pp.ix-xi.

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Caulkins, Jonathan P. 1992. "Judge's Commentary: The Emergency Power Restoration Problem." *The UMAP Journal*, Vol. 13, No. 3, pp.269-271.

Caulkins, Jonathan P. 1991. "Practitioner's Commentary: The Outstanding Steiner Tree Papers." *The UMAP Journal*, Vol. 12, No.3, pp.279-280.

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Barrett, Robert C., Jonathan P. Caulkins, and Andrew J. Yates. 1985. "Population Dynamics of the Peruvian Anchovy." *Mathematical Modelling*, Vol. 6, No. 6. Reprinted as "Peruvian Anchovy Population Dynamics." *Undergraduate Journal of Mathematics and Its Applications*, Vol. 6, No. 3, pp.525-548.

## Articles in Newspapers

Articles or op-eds in the *The New York Times*, *The Guardian*, *Pittsburgh Business Times*, *Plano News*, *Rochester Democrat and Chronicle*, *USA Today*, and the *Wall Street Journal*.

## COURSES TAUGHT (masters level unless otherwise noted)

### Heinz Pittsburgh

#### Methods Classes

Decision Analysis & MCDM	S'91, S'92, S'96, F'97, F'98, F'12
Decision and Risk Modeling	S'04, S'05, S'07, S'09, S'10, S'11, S'12, S'13
MISM/MSIT Decision Making Under Uncertainty	F'02, S'03, S'04, S'05, Su '12
Management Science	S'96 - 99, S'01 - 05, Su '03
Operations Research for the Public Sector	F'93, S'05
Optimization	S'04, S'05, S'12, S'13
Ph.D. Seminar	F'91, S'92, F'92, S'93, F'97, F'98, F'99
Ph.D. Probabilistic Modelling Methods	S'92, S'93

#### Policy Classes

Criminal Justice Policy	F'93, F'95, F'96, F'97, S'10
Illicit Drugs: The Challenge to Policy	F'90, F'91, F'92, F'93, F'95, F'96, S'08
Policy Decision Modeling Workshop	S'05, S'10, S'11, S'12
Physical Technical Systems II	S'91
Systems Synthesis: Municipal Government Cash Flow Management	F'97, S'98

#### Summer undergraduate classes in the QSSP program

Advanced Quantitative Analysis (Mathematical Modelling)	Su '91, Su '12
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### Adelaide Campus

Decision Making Under Uncertainty (in Adelaide, Australia)	S'07, Su '08
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### Qatar Campus (undergraduate classes)

Decision Making	S'06, S'07
Math Modeling for Consulting	F'09, F'10, F'11
Models and Methods for Optimization	S'06, S'07, S'08, S'09
Probability Theory and Random Processes	S'07, S'08, S'09, F'09, F'10
Probability and Statistics for Business Applications	F'05, F'09, F'10

### Executive Education

CIO Decision Making	S'03, S'04, S'05, S'06, S'07, S'09, S'10, S'11, S'12, F'12, S'13
Merging Perspectives on Drugs and Crime (JFK School of Govt. Executive Education Program)	Summer '99
MMM Operations Management	F'08, F'09, F'10, F'11, F'12
Project Management (Korean IT Executive Education Program)	Su'04

### RAND Graduate School



Ph.D.: Drugs, Crime, & Violence: Applying Quantitative Methods to Social Policy Problems	W'95
Vienna Institute of Technology (TU Wien)	
Mathematical Modeling of Drug and Crime Policy	F'96
OR and Financial Modeling	S'02

## PROFESSIONAL SERVICE

### Editing

Guest Editor of Vol. 17, No. 2 *The International Journal of Mathematical and Computer Modelling*: "Mathematical Models of Drug Markets and Drug Policy."

Guest Editor with Gernot Tragler of *Socio-Economic Planning Sciences special issue: Drug Use, Markets, and Policy: Models for Adaptive Control of a Dynamic Problem.*"

Guest Editor with Gernot Tragler and Gustav Feichtineger of *Bulletin on Narcotics* special issue. "Dynamic Drug Policy Modeling."

*Management Science* (Associate editor 1995-1997 & 2003 - present; Departmental Editor 1998-2003)

Associate Editor, *Operations Research* (1996-1999)

Assistant Editor, *Journal of Drug Issues* (1993- present)

Editorial Board Member, *Drug Policy Analysis Bulletin/Journal of Drug Policy Analysis* (1997 – present)

Editorial Board Member, *Socio-Economic Planning Sciences* (2003 – 2013)

Editorial Board Member, *I/S: A Journal of Law and Policy for the Information Society* (2004 – present)

Member of Advisory Committee of *OR/MS Today* (2005 - 2007)

### Refereeing

Referee for: *Addiction*, *Addiction Research & Theory*, *African Journal of Business Management*, *American Economic Review*, *AIMS Conference Proceedings*, *American Journal of Criminal Justice*, *American Journal of Economics and Sociology*, *American Journal of Public Health*, *Australian and New Zealand Journal of Criminology*, *Australian Economic Papers*, *Behavioral Sciences and the Law*, *BMC Medical Research Methodology*, *BMC Public Health*, *British Journal of Sociology*, *British Journal of Mathematical and Statistical Psychology*, *Brooks/Cole Publishing*, *Bulletin on Narcotic Drugs*, *Cambridge University Press*, *Central European Journal for Operations Research and Economics*, *Computers & Operations Research*, *Contemporary Drug Problems*, *Contemporary Economic Policy*, *Crime & Delinquency*, *Crime and Justice* edited volumes, *Crime, Law and Social Change*, *Criminal Justice Review*, *Criminology*, *Decision Analysis*, *Decision Support Systems*, *Drug and Alcohol Dependence*, *Drug and Alcohol Review*, *Drugs: Education, Prevention, and Policy*, *Drustvena Istrazivanja*, *Education Research Journal*, *Electronic Journal of Evolutionary Modeling and Economic Dynamics (e-JEMED)*, *Evaluation and the*

Health Professions, Global Crime, Governance, Health Care Management Science, IEEE Transactions on Control Systems Technology, Information Sciences, Interfaces, International Journal of Comparative and Applied Criminal Justice, International Journal of Drug Policy, International Review of Law and Economics, I/S: A Journal of Law and Policy for the Information Society, JASA, Journal of Acquired Immune Deficiency Syndrome, Journal of Applied Econometrics, Journal of Benefit Cost Analysis, Journal of Business, Journal of Combinatorial Optimization, Journal of Criminal Justice, Journal of Defense Modeling and Simulation, Journal of Drug Issues, Journal of Drug Policy Analysis, Journal of Economic Dynamics and Control, Journal of Economics, Journal of Experimental Criminology, Journal of Health Economics, Journal of Law and Economics, Journal of Law, Economics, and Organization, Journal of Mathematical Biology, Journal of Organizational and End User Computing, Journal of Policy Analysis and Management, Journal of Quantitative Criminology, Journal of Research in Crime and Delinquency, Journal of Urban Economics, Journal of Urban Health, Justice Quarterly, Macroeconomic Dynamics, Management Science, Manufacturing and Service Operations Management, Mathematical and Computer Modelling, Mathematical Social Science, Multi-Echelon/Public Applications of Supply Chain Conference, National Cancer Institute Monograph Series, National Institute of Justice Research Report series, Naval Research Logistics, Omega: The International Journal of Management Science, Operations Research, Optimal Control Applications and Methods, OR Spectrum, Pediatrics, Pew Center for the States, Policy Studies Journal, Public Health, Public Health Reviews, Public Policy Institute of California Report Series, RAND Report Series, Review of Law and Economics, Risk Analysis, Robert Wood Johnson Foundation Health Investigator Awards, Sage Press, Sociological Perspectives, Sociological Quarterly, Science, Substance Abuse and Rehabilitation, Time Sharing Experiments for the Social Sciences, United Kingdom Office of Science and Technology, United Nations Drug Control Program, United Nations University Press, Wiley Press, World Medical and Health Policy, Yale University Press.

### **Proposal Review Panels**

Austrian National Science Foundation, National Institute on Drug Abuse, National Institute of Health, National Institute of Justice, National Science Foundation, Oesterreichische Nationalbank, Pew Charitable Trusts, Robert Wood Johnson Foundation, Royal Society of New Zealand's Marsden Fund, Wellcome Trust

### **RESEARCH GRANTS**

National Science Foundation Graduate Fellowship, 1987-1990.

“Rating Players Who Compete In Disparate Sets of Unlike Tournaments.”  
National Science Foundation. \$42,673. Awarded March, 1992.

“Estimating Own and Cross Elasticities of Demand for Cocaine and Heroin: An Investigation Using DUF Data.” National Institute of Justice. \$25,000. Awarded in 1993.

“National Young Investigator Award.” National Science Foundation. \$125,000 - \$500,000 depending on matching funds. Awarded May, 1993.

“Assessing DoD’s Pilot Programs to Reduce Illegal Drug Use by Youth.” \$250,000. Office of the Secretary of Defense. Awarded March, 1994.

“Modeling Mandatory Minimum Drug Sentences.” Private individual. \$100,000. Awarded November, 1994.

“Drug Policy Research Center: Proposal for Refunding and Report on Activities.” Ford Foundation. \$1,800,000. Awarded August, 1995.

“Measuring the Cost-Efficacy of Drug Prevention.” Robert Wood Johnson Foundation. \$224,501. Awarded January, 1996.

“Dynamic Systems Modeling of the Evolution of Epidemics of Drug Use and Drug-Related Crime and Violence.” National Consortium on Violence Research. \$4,000. Awarded June, 1996.

“Drug Markets and Violence.” National Consortium on Violence Research. \$135,905. Awarded December, 1996.

“Supplement to Drug Markets and Violence.” National Consortium on Violence Research. \$10,000. Awarded July, 1997.

“Why Haven’t Drug Prices Risen with Tougher Enforcement?” Office of National Drug Control Policy and National Institute of Justice. \$261,502. Awarded July, 1998.

“Assessing and Improving the Value of ADAM for Drug Policy Modeling.” National Institute of Justice. \$24,950. Awarded January, 1999.

“Estimating the Effects of Drug Prevention Programs on the Use of Cocaine, Marijuana, Cigarettes, and Alcohol.” Robert Wood Johnson Foundation. \$97,860. Awarded February, 2000.

“A Center for the Analysis of Advancing Information Technologies: Planning Grant Proposal.” The Buhl Foundation. \$79,150. Awarded April, 2000.

“Private Insurance in CyberMarkets.” Alex C. Walker Educational and Charitable Foundation. \$20,000. Awarded December, 2000.

“The Impact of the Information Revolution on Public Policy: A Proposal for Customized Job Training.” Pennsylvania Department of Community and Economic Development. \$247,490. Awarded December, 2000.

“Insights and Strategies for Higher Education Philanthropy.” Private Individual. \$100,000. Awarded January, 2001.

“Describing and Predicting Drug Epidemics.” Robert Wood Johnson Foundation Substance Abuse Policy Research Program. \$61,731. Awarded January, 2003.

“Math Modeling of Social Policy Problems.” CMU-Q Research Fund. \$155,910 in direct costs. Awarded September, 2005.

“Synthesizing Lessons for Drug Policy and Policy Research.” Robert Wood Johnson Health Investigator Award. Awarded May, 2006. \$172,458.

“Modeling Control of Infectious Diseases with Behavior-Driven Infectivity.” Qatar National Research Foundation. Awarded December, 2007. \$132,754.

“Math Modeling of Social Policy Problems, II.” CMU-Q Research Fund. \$44,090 in direct costs. Awarded May, 2011.

“What Users Report About Marijuana’s Harms and Improving Understanding of Who Suffers from Frequent Marijuana Use.” The Achelis and Bodman Foundation. \$50,000. Awarded May, 2014.