

Spring 2023, PPHA 41300, Cost Benefit Analysis Class Meeting Time: Tuesdays and Thursdays 2:00-3:20 p.m.

Instructor: Robert Kaestner E-mail: <u>kaestner@uchicago.edu</u> **Office:** Keller 3057 **Office Hours**: Email anytime; TH. 1-2 p.m., and by appt.

Teaching Assistants: TBA E-mail: <u>hundal@uchicago.edu</u> Office: TBD Office Hours: TBD Office Hours: Email anytime; TBD, and by appt.

Course Description

Cost-benefit analysis (CBA) is the primary tool used to provide objective and transparent, quantitative evidence to inform public policy decisions. Ideally, the use of CBA will improve the efficiency of public policy by identifying public policies/projects that create the most "value" for society. The concept of CBA is easily understood. For any project/policy under consideration (versus current state of the world), do the following: add up all of the current and future monetary costs of the project/policy; add up all of the current and future monetary costs. If benefits are greater than costs, then the project/policy makes society better off and is candidate to be implemented. Seems straightforward, right? Conceptually it is straightforward, although there are a few theoretical and philosophical issues that arise that complicate the analysis. The conceptual difficulties, while important, are few in comparison, however, to the practical difficulties associated with conducting a CBA. I can think of few issues that merit the characterization "the devil is in the details" more than CBA. In this course, we will review the theoretical/conceptual foundations of CBA as applied in the public sector—mainly the executive branch of the federal government. We will also review some of the philosophical issues central to the validity of CBA and practical difficulties in conducting CBA.

Ideally, the course will provide a foundation to be an astute consumer of CBA and a beginner producer of CBAs.

Course Format

The class will meet in-person during scheduled class time. For students who are incapable of attending in-person because of illness (COVID) or another unavoidable circumstance there will be a remote option to attend using Zoom.

It is expected that students will complete the assigned readings prior to class.

There are almost weekly in-class activities (assignments) that are intended to be student directed. For each activity, I expect students to be ready to engage with me and each other. The in-class activities are intended to allow students to articulate course content in their own words, deepen their understanding of the course content and to provide an opportunity for students to learn from one another. Everyone is expected to participate and everyone should feel comfortable expressing their view. I understand that it may be difficult for some students to speak publicly, but the class is a welcoming, respectful community. The class discussions are an active learning process and by definition learning means not knowing already. So, feel free to think creatively and openly even though sometimes it will be a miss hit.

Relationship to Curriculum

This is a course in applied economic analysis focused on assessing whether programs and policies increase social welfare.

This course is intended to build on the foundation of microeconomics provided in the two-course, core economics sequence. Accordingly, there will be some overlap with the material presented in those courses because cost benefit analysis is based largely on microeconomic analysis of markets. To the extent that there is overlap and review, this will serve to strengthen your understanding of microeconomic analysis. However, this course will focus more on welfare economics (market surplus, market failure and government intervention). Costbenefit analysis also depends on empirical estimates of costs and benefits, and this aspect of the course will build on your training in statistics and empirical methods (e.g., program evaluation). Finally, applications of cost-benefit analysis span several areas of public policy, including health, education and the environment.

Course Objectives:

- Obtain a thorough understanding of the microeconomic foundations of CBA.
- Understand the Hicks-Kaldor Criterion and philosophical objections and criticism of it and concerns over the distributional impacts and how they are accounted for in CBA.
- Acquire the skill to use supply and demand analysis to identify costs and benefits in primary and secondary markets, and to conduct simple cost-benefit analyses.
- Learn common techniques to value benefits when market prices do not exist.
- Have a working knowledge of the role and importance of each of the key steps in conducting a CBA, such as the issue of who has standing, the importance of transparency and the use of sensitivity analysis.
- Understand the most common practical problems that arise in CBA including the appropriate discount rate, uncertainty, the efficacy of contingent valuation, and how to measure the statistical value of a life.

Course Policies:

Use of Web and Email: I will post course materials to the university's CANVAS web-based course management system: the URL is <u>http://courses.uchicago.edu/</u>. Students are responsible for any and all material posted there. I encourage the use of email and I try to respond in a timely fashion. My email address is <u>kaestner@uchicago.edu</u>. Please be sure to set your notifications on CANVAS so that you receive all communications from me sent through this platform.

Attendance is graded. I understand that circumstances may sometimes require you to miss a class, although with a 9-week quarter, any absence represents a significant loss of time. Students who need to miss class because of sixkness (or other reasons) shall notify me in a timely manner as to when they will be absent. I will make every reasonable effort to honor the request, not penalize the student for missing the class, and if an examination or assignment is due during the absence, give the student an exam or assignment equivalent to the one completed by those students in attendance. A similar process for notifying me should be followed for students who wish to observe their religious holidays. Again, I will make every reasonable effort to honor the request and not penalize the student for missing the class.

Late Assignments and Missed Exams: Unless explicitly agreed upon in advance, late assignments will not be accepted.

COVID-19 Protocols should be followed: https://goforward.uchicago.edu/health-requirements/

Disability Accommodation:

The University of Chicago seeks to provide an environment conducive to learning, teaching, working, and conducting research that values the diversity of its community. The University strives to be supportive of the academic, personal, and work-related needs of each individual and is committed to facilitating the full participation of students with a disability in the life of the University. Students with a disability, particularly those that require an accommodation, should contact Student Disability Services (<u>https://disabilities.uchicago.edu/</u>).

Books:

Course Materials

• Anthony E. Boardman, David H. Greenberg, Aidan R. Vining, and David L. Weimer, *Cost- Benefit Analysis: Concepts and Practice*, 5th ed. 2018, (Cambridge University Press) ISBN: 9781108415996 (Cheaper 4th edition is available, cheaper and very similar—but if you go this route it is at your own risk)

Readings: Posted on canvas.

Assignments and Grading

• Class Participation Assignments: There are 9 short, take-home assignments that relate to material that will be covered in class. Assignments and the due dates (by beginning of relevant class) are listed in the course outline below. Please make sure you identify the due dates. All assignments are to be completed independently without assistance except from TAs or Professor.

Grades for class participation assignments are: 4=excellent (professional preparation, provided clear, direct and well-reasoned answers that reflect full understanding of the course material), 3=good (professional preparation, provided clear, direct and well-reasoned answers that reflect a good but not full understanding of the course material), 2=average (professional preparation, provided answers that were adequate but lacked clarity or an adequate understanding of the course material). 1=unacceptable (unprofessional preparation, incomplete and/or incoherent answers).

Class participation assignments contributes 50% to the final grade.

Attendance: Grades for attendance are: 4—miss 1 or fewer classes; 3—miss 2-3 classes; 2—miss 4-6 classes; 1—miss more than 6 classes

Attendance contributes 10% to final grade.

• There will be a take-home midterm exam and a take-home final exam. Each exam will have questions that are similar to the class participation assignments. All exams are to be completed independently without assistance except from TAs or Professor.

Each question on the exam will be graded on the 1 to 4 scale (see above for class assignments) and equally weighted.

Each exam will contribute 20% to final grade.

Midterm Exam: distributed April 20 and Due May 4 Final Exam: distributed May 18 and Due May 25

• Final grades are letter grades and follow the common grading policy of University and Harris Public Policy: <u>https://registrar.uchicago.edu/records/grading/.</u> Numerical grades will be mapped to letter grades as follows:

Total Points = (0.5*sum of points on class participation assignments) + (0.1*points for attendance) + (0.4*sum of points on midterm and final).

Maximum Points = (0.5*36) + (0.1*4) + (0.4*32) -this assumes there will be 4 questions and 16 maximum points on each exam

Numeric Grade = Total Points/Maximum Points

The mapping of numeric grade to letter grade is:

A (1-0.95), A-(0.94-0.90), B+(0.89-0.87): B (0.86-0.83), B-(0.82-0.80), C+(0.79-0.77), C (0.76-0.73), C-(0.72-0.70)

Academic Integrity: (https://studentmanual.uchicago.edu/Policies)

"It is contrary to justice, to academic integrity, and to the spirit of intellectual inquiry to submit the statements or ideas of work of others as one's own. To do so is plagiarism or cheating, offenses punishable under the University's disciplinary system. Because these offenses undercut the distinctive moral and intellectual character of the University, we take them very seriously and punishments for them may include expulsion from the University."

"Proper acknowledgment of another's ideas, whether by direct quotation or paraphrase, is expected. In particular, if any written or electronic source is consulted and material is used from that source, directly or indirectly, the source should be identified by author, title, and page number. Any doubts about what constitutes "use" should be addressed to the instructor."

Course Outline

Date	Торіс	Reading/Class Activity
March 21	Introduction Boardman's 10 Steps	 Boardman et al. Chapter 1 Scott Farrow, How Not to Lie with Benefit-costs Analysis, <i>The Economists Voice</i>, 10:45-50
		• Dudley, S., Belzer, R., Blomquist, G., Brennan, T., Carrigan, C., Cordes, J., Zerbe, R. (2017). Consumer's Guide to Regulatory Impact Analysis: Ten Tips for Being an Informed Policymaker. <i>Journal of Benefit-Cost Analysis</i> , 8(2), 187-204.
		 Skim (Look Over Briefly) Office of Management and Budget. Circular A-4. 2003. <u>https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/circulars/A4/a-4.pdf</u> (Skim Table of Contents and Skim—Look Briefly at Chapters) EPA, Guidelines for Preparing Economic Analyses, <u>https://www.epa.gov/environmental-</u> <u>economics/guidelines-preparing-economic-analyses</u>
March 23	Class Participation Assignment	Read: Abelson, Peter. "A partial review of seven official guidelines for cost-benefit analysis." <i>Journal of Benefit-Cost Analysis</i> 11, no. 2 (2020): 272-293.
	Due by start of class March 23	 Prepare a one-page document (11–12-point font, single or double spacing) discussing the following: Most local and state representatives promote policies that are intended to benefit their constituents. How does this relate to the issue of standing and what would be your recommendation to a local elected official about this issue, for example, when proposing policies that encourage employment in their district? What are secondary markets? Is employment and macroeconomic benefits considered within the scope of a cost-benefit analysis? Government uses taxes to provide funding to implement policies. How should this be incorporated into a cost-benefit analysis?
March 23	International Comparisons of CBA Best Practices	• Abelson, Peter. "A partial review of seven official guidelines for cost-benefit analysis." <i>Journal of Benefit-Cost Analysis</i> 11, no. 2 (2020): 272-293.
	Application: Cost- Benefit Analysis of Child Allowance	• Garfinkel, Irwin, Laurel Sariscsany, Elizabeth Ananat, Sophie M. Collyer, Robert Paul Hartley, Buyi Wang, and Christopher Wimer. <i>The Benefits and Costs of a US Child Allowance</i> . No. w29854. National Bureau of Economic Research, 2022.
March 28	Demand and Willingness to Pay	• Boardman et al. Chapter 3 and Chapter 3, Appendix A
	Consumer Surplus	
	Equivalent Variation Compensating Variation	• Tuncel, Tuba and James K Hammitt. "A new meta-analysis on the WTP/WTA disparity." Journal of Environmental Economics and Management, 175-187.
March 30	Class Participation Assignment	Read: Davis, Lucas, Estimating the Price Elasticity of Demand for Subways: Evidence from Mexico (December 2020). NBER Working Paper No. w28244, Available at SSRN: https://ssrn.com/abstract=3753153
	Due by start of class March 30	 Prepare a one-page document (11–12-point font, single or double spacing) that answers and discusses the following: What is the elasticity of demand that Davis estimated? What approach (method) did he use to obtain the estimate? Discuss the internal validity of that method. How did he use the elasticity in the cost-benefit analysis?

March 30	Elasticity of Demand	• Davis, Lucas, Estimating the Price Elasticity of Demand for Subways: Evidence from Mexico (December 2020). NBER Working Paper No. w28244, Available at SSRN: <u>https://ssrn.com/abstract=3753153</u>
April 4	Supply and Opportunity Cost	• Boardman et al. Chapters 3 and 6
	Marginal Cost	
	Short and Long Run	
	Market Equilibrium and Market Surplus	
April 6	Class Participation Assignment Due by start of class April 6	 Students will be randomly assigned to read one of the following: (1) Rent Control: Diamond et al., 2019. "The Effects of Rent Control Expansion on Tenants, Landlords, and Inequality: Evidence from San Francisco," American Economic Review, 109:3365-94 (2) Lordan, G., Neumark, D., 2018. People versus machines: The impact of minimum wages on automatable jobs. Labour Economics 52, 40–53. Prepare a one-page document (11–12-point font, single or double spacing) that provides a graphical analysis of the effect of the policy in the paper you read and be sure to show how the policy changes the social surplus of the primary market. Please provide some written description of your graphs. Graphs can be drawn by hand and do not have to be perfect. Just make sure to link your description to the graph.
April 6	Hicks-Kaldor Criterion CBA Decision Rules Simple Cost-Benefit Analysis using Supply and Demand	 Boardman et al. Chapter 2 World Bank, "Cost-Benefit Analysis: Evaluation Criteria (Or: "Stay away from the IRR")", Knowledge Brief, 2008. (1) Rent Control: Diamond et al., 2019. "The Effects of Rent Control Expansion on Tenants, Landlords, and Inequality: Evidence from San Francisco," American Economic Review, 109:3365-94 (2) Lordan, G., Neumark, D., 2018. People versus machines: The impact of minimum wages on automatable jobs. Labour Economics 52, 40–53.
April 11	Class Participation Assignment Due by start of class April 11	 Read: Boardman, A., Greenberg, D., Vining, A., & Weimer, D. (2020). Efficiency without Apology: Consideration of the Marginal Excess Tax Burden and Distributional Impacts in Benefit–Cost Analysis. Journal of Benefit-Cost Analysis, 11(3), 457-478. Prepare a one-page document (11–12-point font, single or double spacing) that includes the following: Discuss and explain the following quotes: "The METB may be ignored because analysts think that revenue extracted from taxpayers is essentially a transfer that does not affect efficiency. However, this approach ignores the actual social cost of raising tax revenue. Raising tax revenues requires the expenditure of real resources and typically distorts markets. The social cost of these expenditures and distortions, the METB, should be taken into account in a comprehensive BCA." "We agree with the perspective that BCA best contributes to good public policy by facilitating explicit consideration of the tradeoff between allocative efficiency and other social values, such as a more equal distribution of wealth In view of all the uncertainties involved in BCA, good practice usually involves communicating the components of benefits and costs, as well as net benefits. If one were to monetize moral sentiments, it would be especially important to convey this component of benefits to help avoid over- or undercounting of distributional values"

April 11	Fundamental Theorems of Welfare Economics	 Boardman et al. Chapter 19 (Read Casually) Joseph Persky. 2001. Cost-benefit Analysis and the Classical
	The Cost of Public Funds	 Creed. <i>Journal of Economic Perspectives</i>, Volume 15, Number 4, Pages 199 –208 Boardman, A., Greenberg, D., Vining, A., & Weimer, D. (2020). Efficiency without Apology: Consideration of the Marginal Excess Tax Burden and
	Distributional Weights	Distributional Impacts in Benefit–Cost Analysis. Journal of Benefit-Cost Analysis, 11(3), 457-478. doi:10.1017/bca.2020.18
April 13	Valuing Inputs and Outputs in Primary Markets	• Boardman et al. Chapters 5 and 6
April 18	Class Participation Assignment Due by start of class April 18	 Students will be randomly assigned to read one of the following: (1) Hunt Allcott & Benjamin B. Lockwood & Dmitry Taubinsky, 2019. "Should We Tax Sugar-Sweetened Beverages? An Overview of Theory and Evidence," Journal of Economic Perspectives, vol 33(3), pages 202-227 (2) Anders Anderson and Harrison Hong, "Welfare Implications of Electric-Bike Subsidies: Evidence from Sweden," NBER Working Paper no. 29913, April 2022. Prepare a one-page document (11–12-point font, single or double spacing) that discusses the nature of the market failure (i.e., market distortion) in the paper you read. Based on your knowledge of economics, discuss the best approach to addressing the market failure (you may want to use supply and demand analysis for this but it is not necessary). Finally, discuss how you would incorporate this issue in a cost-benefit analysis.
April 18	Valuing Outputs in Distorted Markets	 Hunt Allcott & Benjamin B. Lockwood & Dmitry Taubinsky, 2019. "Should We Tax Sugar-Sweetened Beverages? An Overview of Theory and Evidence," Journal of Economic Perspectives, vol 33(3), pages 202-227 Anders Anderson and Harrison Hong, "Welfare Implications of Electric-Bike Subsidies: Evidence from Sweden," NBER Working Paper no. 29913, April 2022.
April 20	Behavioral Economics or When do we trust the consumer?	• Sunstein, C. (2020). Behavioral Welfare Economics. Journal of Benefit-Cost Analysis, 11(2), 196-220. doi:10.1017/bca.2020.14
	Indirect Measurement of Primary Benefits	 Bartik, T., Hershbein, B., & Lachowska, M. (2016). The Merits of Universal Scholarships: Benefit-Cost Evidence from the Kalamazoo Promise. Journal of Benefit-Cost Analysis, 7(3), 400-433. doi:10.1017/bca.2016.22
April 25	Secondary Markets	Boardman et al. Chapter 7
April 27	Class Participation Assignment	(Read Casually) Bartik, Timothy J. "Including Jobs in Benefit-Cost Analysis" Annual Review of Resource Economics 4 (2012): 55-73.
	Due by start of class April 27	Prepare a one-page document (11–12-point font, single or double spacing) that discusses whether and why jobs are usually counted in a CBA? Discuss how you would monetize benefits if you were going to count jobs.
April 27	Valuing Inputs in Distorted Markets	• Boardman et al. Chapters 5 and 6
	Jobs as Benefits	• (Read Casually) Bartik, Timothy J. "Including Jobs in Benefit-Cost Analysis" Annual Review of Resource Economics 4 (2012): 55-73.
	Macroeconomic Externalities	• (Read Introduction and Sections 1.4 and 2; other sections can be skipped) Edward L. Glaeser and James M. Poterba . 2020. "Introduction to "Economic Analysis and Infrastructure Investment", in "Economic Analysis and Infrastructure Investment", University of Chicago Press, http://www.nber.org/chapters/c14351

May 2	Discounting	 Boardman et al. Chapters 9 and 10 Arrow, K., M. et al. Cropper, C. Gollier, B. Groom, G. Heal, R. Newell, W. Nordhaus, R. Pindyck, W. Pizer, P. Portnoy, T. Sterner, R.S.J. Tol, and M. Weitzman; "Determining Benefits and Costs for Future Generations," Science 26 July 2013; Vol. 34: 349-350 (Read Sections 1-3) Drupp M, Freeman M C, Groom B and Nesje F (2018). 'Discounting Disentangled'. Forthcoming in the American Economic Journal: Economic Policy. Working paper version: Grantham Research Institute on Climate Change and the Environment Working Paper No. 172 Council of Economic Advisers, "Discounting For Public Policy: Theory And Recent Evidence On The Merits Of Updating The Discount Rate," January 2017 MacAskill, William. "The Case for Longtermism" New York Times August 5, 2022
May 4	Class Participation Assignment Due by start of class May 4	 Read: Carleton, Tamma and Greenstone, Michael, Updating the United States Government's Social Cost of Carbon (January 14, 2021). University of Chicago, Becker Friedman Institute for Economics Working Paper No. 2021-04, Prepare a one-page document (11–12-point font, single or double spacing) that includes the following: Identify and briefly comment on the three ingredients referred to in the following recommendation: <i>Recommendation: We recommend that the Biden administration</i> <i>replace all existing IAM damage functions with those that meet these three criteria.</i> Discuss the following: <i>Recommendation:</i> We recommend continuing to rely on existing asset markets to guide the choice of discount rates. Based on recent asset market trends, we recommend a discount rate of no higher than 2 percent. Do you agree with the following: <i>Our recommendation is to use global damages in</i> <i>calculating the SCC.</i>
May 4	Social Cost of Carbon	 Resources for the Future: Social Cost of Carbon 101 Carleton, Tamma and Greenstone, Michael, Updating the United States Government's Social Cost of Carbon (January 14, 2021). University of Chicago, Becker Friedman Institute for Economics Working Paper No. 2021-04,
May 9	Revealed Preference Value of a Statistical Life	 Boardman et al. Chapters 14, 15, 17 Cropper, Maureen and Hammitt, James K. and Robinson, Lisa A., Valuing Mortality Risk Reductions: Progress and Challenges (October 2011). Annual Review of Resource Economics, Vol. 3, Issue 1, pp. 313-336, 2011. Aldy, J. E., & Viscusi, W. K. (2008). Adjusting the Value of a Statistical Life for Age and Cohort Effects. Review of Economics and Statistics, 90 (3), 573-581
May 11	Class Participation Assignment Due by start of class May 11	 Students will be randomly assigned to read one of the following: (1) Kahn, Matthew E., and Nils Kok. "The capitalization of green labels in the California housing market." <i>Regional Science and Urban Economics</i> 47 (2014): 25-34. (2) Sandra E. Black. Do Better Schools Matter? Parental Valuation of Elementary Education, The Quarterly Journal of Economics, Vol. 114, No. 2 (May, 1999), pp. 577-599 Prepare a one-page document (11–12-point font, single or double spacing) that describes the output of interest n the article you read and identify a couple of policies that would affect that outcome. Describe the method that is being used to value the output. Discuss the nature of the market failure (i.e., market distortion) in the paper you read. Based on your knowledge of economics, discuss the best approach to addressing the market failure. Finally, discuss how you would incorporate this issue in a costbenefit

May 11	Revealed Preference, Hedonic Regression	 Kahn, Matthew E., and Nils Kok. "The capitalization of green labels in the California housing market." <i>Regional Science and Urban Economics</i> 47 (2014): 25-34. Sandra E. Black. Do Better Schools Matter? Parental Valuation of Elementary Education, The Quarterly Journal of Economics, Vol. 114, No. 2 (May, 1999), pp. 577-599.
May 16	Travel Cost Approach The Value of Time	 (Just focus on understanding the field experiments and results of this article) Goldszmidt, Ariel and List, John A and Metcalfe, Robert D and Muir, Ian and Smith, V. Kerry and Wang, Jenny. 2020. "The Value of Time in the United States: Estimates from Nationwide Natural Field Experiments", National Bureau of Economic Research", http://www.nber.org/papers/w28208
May 18	Class Participation Assignment Due by start of class May 18	 Students will be randomly assigned to read one of the following: (1) Ludwig, J., Cook, P.J. The Benefits of Reducing Gun Violence: Evidence from Contingent-Valuation Survey Data. <i>Journal of Risk and Uncertainty</i> 22, 207–226 (2001). https://doi.org/10.1023/A:1011144500928 (2) Cohen, M. (2015). Willingness to Pay to Reduce White-Collar and Corporate Crime. Journal of Benefit-Cost Analysis, 6(2), 305-324 Prepare a one-page document (11–12-point font, single or double spacing) that answers the following: Identify and briefly discuss the method of elicitation of value that was used in the article you read? Identify and briefly discuss what the payment vehicle was for the survey? Briefly discuss whether the good (output) was well described and a clearly identifiable good? Does crime have direct use, passive use or other types of use value? Comment on the adequacy of the samples.
May 18	Contingent Valuation	 Boardman et al. Chapters 13, 16 Catherine L. Kling, Daniel J. Phaneuf and Jinhua Zhao. 2012. "From Exxon to BP: Has Some Number Become Better Than No Number?" <i>Journal of Economic Perspectives</i> Vol. 26, No. 4, pp. 3-26. http://www.aeaweb.org/articles.php?doi=10.1257/jep.26.4 Carson, Richard. 2012. "Contingent Valuation: A Practical Alternative When Prices Aren't Available" <i>Journal of Economic Perspectives</i> Vol. 26, No. 4, pp. 27-42. http://www.aeaweb.org/articles.php?doi=10.1257/jep.26.4 Hausman, Jerry. 2012. "Contingent Valuation: From Dubious to Hopeless" <i>Journal of Economic Perspectives</i> Vol. 26, No. 4, pp. 27-42. http://www.aeaweb.org/articles.php?doi=10.1257/jep.26.4 Hausman, Jerry. 2012. "Contingent Valuation: From Dubious to Hopeless" <i>Journal of Economic Perspectives</i> Vol. 26, No. 4, pp. 43-56. Ludwig, J., Cook, P.J. The Benefits of Reducing Gun Violence: Evidence from Contingent-Valuation Survey Data. <i>Journal of Risk and Uncertainty</i> 22, 207–226 (2001). https://doi.org/10.1023/A:1011144500928 Cohen, M. (2015). Willingness to Pay to Reduce White-Collar and Corporate Crime. Journal of Benefit-Cost Analysis, 6(2), 305-324
Time Permitting	Risk and Uncertainty	 Boardman et al. Chapters 11 (Section 1.1) and 12 (Read Casually) Sunstein, Cass R., "Irreversible and Catastrophic," 91 <i>Cornell Law Review</i> 841 (2006) Flyvbjerg, Bent and Bester, Dirk W., The Cost-Benefit Fallacy: Why Cost-Benefit Analysis Is Broken and How to Fix It (September 6, 2021). Journal of Benefit-Cost Analysis, October, pp. 1-25 (focus on Sensitivity Analysis at end of article) Greenberg, D. (2012). A cost-benefit analysis of Tulsa's IDA program: Findings from a long-term follow-up of a random assignment social experiment (CSD Working Paper No. 12-58). St. Louis, MO: Washington University, Center for Social Development