

Public Policy 41300 – Cost-Benefit Analysis  
Syllabus

Fall 2023

Kathryn Ierulli  
[kierulli@uchicago.edu](mailto:kierulli@uchicago.edu)

**Course description:** The goals of this course include learning the fundamentals of cost-benefit analysis; using CBA to evaluate policy; and developing an understanding of CBA's strengths and limitations. CBA is ubiquitous in modern policy-making arenas and draws its foundations from many related social sciences.

We will concentrate on: 1) concepts – to allow you understand and contextualize CBA, and 2) methods – to help you produce and evaluate CBA. While there is some overlap in material between this course and others (particularly program evaluation and cost-effectiveness analysis), this course provides an introduction to most of the standard techniques involved in CBA.

**Prerequisites:** Two quarter core microeconomics sequence at Harris, or equivalent. One course statistics or econometrics, or equivalent.

**Class meetings:** There is a MW section and a TTh section.

MW 3 – 4.20pm, Keller 0023, TA session Thursday 5 – 6.20pm, Keller 0023.

TTh 2 – 3.20pm, Keller 0023, TA session Friday 1.30 – 2.50pm, Keller 0023.

**People and Contact**

**TAs:** Alison Doxey, [alison.doxey@chicagobooth.edu](mailto:alison.doxey@chicagobooth.edu), Maahir Vasi, [mvasi3818@uchicago.edu](mailto:mvasi3818@uchicago.edu).

**Office hours:**

Kathryn Ierulli

-- after class, usually for one hour, Keller 2053.

-- TAs will hold regular weekly office hours. The times and places will be announced on Canvas.

**Classes**

**In-class protocol:** This is a lecture course with discussion encouraged during class. Questions and comments are always apropos, subject to time constraints. You are expected to attend each class and TA session, though attendance will not be part of your graded work. I do not anticipate dual-modality classes.

I will post powerpoint slides on Canvas shortly before class, and if you need to, you may print and take notes on them. However, in my experience, an even better technique is to take notes by hand and go over the slides later. There has been substantial neurological research that understanding new material is greatly facilitated by actually writing it down, i.e. the following:

<https://www.npr.org/2016/04/17/474525392/attention-+students-put-your-laptops-away>

<https://www.scientificamerican.com/article/a-learning-secret-don-t-take-notes-with-a-laptop/>

In fairness, there are also studies that claim the reverse. Many online articles are written to support this, but a substantial fraction are written by software companies that market outline or searchable directory templates. The most comprehensive tests I've seen regarding outcomes from handwritten or computer note-taking is:

<https://doi.org/10.1080/00220485.2020.1731386>

The main points made in this paper: 1) effects of laptop note-taking are weakly negative but statistically insignificant within student, 2) students who prefer note-taking by hand versus laptops seem slightly different from one another.

It is worth noting the study was done pre-Covid.

In any case, the decision is yours.

**Assignment & Exam Due Dates:**

For MW session, problem sets are due Wednesdays, and the weekly problem session will go over answers. Answers are not distributed digitally.

Problem Set 1 – Wednesday of 3<sup>rd</sup> week

Problem Set 2 – Wednesday of 4<sup>th</sup> week

Midterm Exam – Wednesday of 5<sup>th</sup> week

Individual Report 1 – Wednesday of 6<sup>th</sup> week

Problem Set 3 – Wednesday of 7<sup>th</sup> week

Individual Report 2 – Wednesday of 8<sup>th</sup> week

Problem Set 4 – Wednesday of 9<sup>th</sup> week

Final Exam – scheduled time 10<sup>th</sup> week

For TTh session, problem sets are due Thursdays, and the weekly problem session will go over answers. Answers are not distributed digitally.

Problem Set 1 – Thursday of 3<sup>rd</sup> week

Problem Set 2 – Thursday of 4<sup>th</sup> week

Midterm Exam – Thursday of 5<sup>th</sup> week

Individual Report 1 – Thursday of 6<sup>th</sup> week

Problem Set 3 – Thursday of 7<sup>th</sup> week

Individual Report 2 – Thursday of 8<sup>th</sup> week

Problem Set 4 – Thursday of 9<sup>th</sup> week

Final Exam – scheduled time 10<sup>th</sup> week

**Problem Sets:** Problem sets are submitted on Canvas. You are allowed and encouraged to work in groups of up to four members and turn in a joint problem set. Please have one member log on to Canvas and set up your Study Group (under the People tab). Use that group to submit homework digitally. When you turn in a problem set, whether you work in a group or not, write **only** your ID number(s) on your work – no names. We also request that the problem sets be typed, although some graphs and figures that are hand-drawn may be acceptable. Neat and readable work is a professional expectation, and if your work cannot be read, it cannot be given points.

**Individual Reports:** Choose a published cost-benefit analysis of interest to you, and hand in two 2-page write-ups analyzing various aspects of it – the program or policy it evaluated, why a cost-benefit analysis was done, and what components of this course your CBA analyzed. This is done on an individual level and handed in like homework.

These are graded Pass/No Pass.

Since I will read and mark your individual reports, I will log the CBA you are analyzing. If by coincidence two students choose the same CBA to report on, both students will be requested to find another CBA to use going forward, with confirmation that they are no longer identical.

**Exams:** There will be a midterm and a final exam. See dates above. If you are graduating, contact me via email, as you will need to take an early final exam. You may use one 8.5x11 piece of paper as a cheat sheet for exams, two-sided, and a calculator. The exams are closed-book and no laptops or devices are permitted.

**Grading:** Grades will be based on problem sets and your report on a CBA (32% and 13%), midterm exam (25%); and final exam (30%). I will use the standard Harris distribution for final grades, which means they are curved.

**Regrade policy:** If you have a question about your grade, either on problem sets or exams, please make an appointment with the individual who graded your work to discuss. If at the end of the discussion you feel you deserve more credit (or less, though I very rarely see this!) please turn in your written work to me, along with a paragraph explaining your reasoning. The only large differences I have ever seen were addition errors, but anything is possible. All regrades must be requested within 7 days of material being returned to the student.

**Academic integrity:** You are expected to abide by the University's expectations regarding academic integrity. Please review this excerpt from the University's Student Manual, <https://studentmanual.sites.uchicago.edu/Policies#Honesty>:

It is contrary to justice, academic integrity, and to the spirit of intellectual inquiry to submit another's statements or ideas as one's own work. 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.

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, or by website and date accessed. Any doubts about what constitutes "use" should be addressed to the instructor.

These expectations apply to exams and problem sets as well. Your submitted work represents your commitment that it is your own independent work, and that you have relied on no other individuals or resources, except as explicitly specified in the assignment instructions. If you have specific questions, contact me directly. For sourcing from digital documents as plagiarism, here is an example of good practices: <http://www.nytimes.com/2010/08/02/education/02cheat.html>

### General Resources

- [Harris Academic Support Programs and Handbook](#)
- [University Learning Resources](#)

### Harris School and UChicago Policies

- [Harris School Policies](#)
- [University General Policies](#)
- [University Academic Policies](#)

### Readings

Required:

*Cost-Benefit Analysis: Concepts & Practice*, 5<sup>th</sup> edition, by Boardman, Greenburg, Vining, & Weimer (Cambridge University Press, 2018). The e-book version should be available through the bookstore as well.

Supplemental, not required:

*Introduction to Cost-Benefit Analysis*, Gines de Rus, Edward Elgar, 2010.  
*A Guide to Cost-Benefit Analysis*, Edward M. Gramlich, Prentice Hall.

Other readings are listed below, with URL or source information. In some cases, you may need to access from a campus computer, or provide proof of UC affiliation. In a few cases, no on-line version is available, and I may post those to Canvas. Regenstein Library's website is also useful for finding most journal articles: [http://sfx.lib.uchicago.edu/sfx\\_local/az/](http://sfx.lib.uchicago.edu/sfx_local/az/). **The list of readings is subject to revision.** Some URLs are not stable, so please be resourceful if a link has become broken. Try going to the home page of the institution or author, for example. A web search on the article title and author names may also work.

## Course Topics / Weeks

---

### Week 1

#### *What is Cost-Benefit Analysis, & How is it Used?*

Boardman, Chapter 1 - Introduction

Robert H. Frank, "Why Is Cost-Benefit Analysis so Controversial?" *The Journal of Legal Studies* 29, no. S2 (June 2000): just read pp. 913-918

#### **Supplemental/optional:**

Recent and current changes in US Executive branch uses of CBA

Trump administration

1. <https://www.brookings.edu/research/how-the-trump-administration-can-use-benefit-cost-analysis-to-justify-deregulation/>
2. [https://www.rand.org/content/dam/rand/pubs/perspectives/PE200/PE241/RAND\\_PE241.pdf](https://www.rand.org/content/dam/rand/pubs/perspectives/PE200/PE241/RAND_PE241.pdf) (skim)

Biden administration

1. <https://www.brookings.edu/articles/overview-and-analysis-of-the-biden-administrations-recent-regulatory-review-and-analysis-changes/>
2. <https://www.amacad.org/publication/some-costs-benefits-cost-benefit-analysis>

Overviews of use of CBA

"Cost-Benefit Analysis," Matthew J. Kotchen, *Encyclopedia of Climate and Weather 2<sup>nd</sup> edition* New York: Oxford University Press, 2010. <http://environment.yale.edu/kotchen/pubs/CBAchap.pdf>

LeDuc, Daniel, "Results That Bring Change," MacArthur Foundation, Trust, Summer 2014.  
[http://www.macfound.org/media/files/PewPartners\\_FINAL.PDF](http://www.macfound.org/media/files/PewPartners_FINAL.PDF)

Example of unintended effects of policy: Jennifer L. Doleac and Benjamin Hansen, "The Unintended Consequences of "Ban the Box": Statistical Discrimination and Employment Outcomes When Criminal Histories Are Hidden," *Journal of Labor Economics*, 2019

#### *CBA decision rules*

Boardman, Chapter 2; Chapter 19 (skip 19.5.2) – Foundations of CBA, Distributional CBA

World Bank, “Cost-Benefit Analysis: Evaluation Criteria (Or: “Stay away from the IRR”)", Knowledge Brief, 2008.  
[http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2008/02/05/000020953\\_20080205155606/Rendered/PDF/406190REVISED0irr06122301PUBLIC1.pdf](http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2008/02/05/000020953_20080205155606/Rendered/PDF/406190REVISED0irr06122301PUBLIC1.pdf)

**Supplemental/optional:**

‘Benefit-Cost Analysis and Distributional Weights: An Overview’, Matthew D. Adler, Review of Environmental Economics and Policy, Volume 10, Number 2  
<https://www.journals.uchicago.edu/doi/full/10.1093/reep/rew005#rew005-B2>

---

**Week 2**

*Measures of welfare*

Boardman, Chapter 3 – Consumer and Producer Surplus, WTP and WTA

OECD, “Willingness to Pay vs. Willingness to Accept,” Chapter 11 in Cost-Benefit Analysis & the Environment: Recent Development, OECD, 2006. [Note: pp. 155-167.] [http://www.oecd-ilibrary.org/environment/cost-benefit-analysis-and-the-environment\\_9789264010055-en](http://www.oecd-ilibrary.org/environment/cost-benefit-analysis-and-the-environment_9789264010055-en)

Can read it though you cannot download it.

**Supplemental:**

Kahneman, Knetsch & Thaler, “The Endowment Effect: Evidence of Losses Valued More Than Gains.” Handbook of Experimental Economics, Chapter 100. Elsevier 2008.  
<https://faculty.chicagobooth.edu/Richard.Thaler/research/pdf/The%20Endowment%20Effect%20Evidence%20of%20Losses%20Valued%20More%20Than%20Gains.pdf>

Adamowicz, Bhardwaj & Macnab, “Experiments on the Difference Between Willingness to Pay and Willingness to Accept.” Land Economics, 69(4), 1993. [https://www.jstor.org/stable/3146458?seq=1#page\\_scan\\_tab\\_contents](https://www.jstor.org/stable/3146458?seq=1#page_scan_tab_contents)

Sayman & Unculer, “A Meta Analysis of the Willingness to Accept and Willingness to Pay Disparity.” Working Paper, INSEAD, 2002/89/MKT/TM. [https://flora.insead.edu/fichiersti\\_wp/inseadwp2002/2002-89.pdf](https://flora.insead.edu/fichiersti_wp/inseadwp2002/2002-89.pdf)

Brown, Thomas & Gregory, Robert, “Why the WTA-WTP Disparity Matters.” Ecological Economics, 28 (1999), 323 – 335.  
[https://www.fs.fed.us/rm/pubs\\_other/rmrs\\_1999\\_brown\\_t001.pdf](https://www.fs.fed.us/rm/pubs_other/rmrs_1999_brown_t001.pdf)

*Costs & benefits when markets exist: primary markets*

Boardman, Chapter 5, 6 – Valuing Impacts in Output and Input Markets

Haveman, Robert H., & David L. Weimer, “Public Policy Induced Changes in Employment: Valuation Issues for Benefit-Cost Analysis,” Journal of Benefit-Cost Analysis 6 (2015): pp. 112-153.  
<http://journals.cambridge.org/action/displayAbstract?fromPage=online&aid=9668866>

---

**Week 3**

*How do we add up costs and benefits?*

Boardman, Chapter 5, 6 – Valuing Impacts in Output and Input Markets, continued

## *Costs & benefits when markets exist: secondary markets*

Boardman, Chapter 7 – Valuing Impacts in Secondary Markets

de Rus, Gines, “The BCA of HSR: Should the Government Invest in High Speed Rail Infrastructure?” *Journal of Benefit-Cost Analysis* 2, 2011. [http://www.evaluaciondeproyectos.es/EnWeb/Results/Dissemination/Activities/jan11/vie\\_wcontent.pdf](http://www.evaluaciondeproyectos.es/EnWeb/Results/Dissemination/Activities/jan11/vie_wcontent.pdf)

de Rus, Gines. “Economic Evaluation of High Speed Rail.” <http://www.ems.expertgrupp.se/uploads/documents/hsr.pdf>

---

### **Week 4**

#### *Discounting – value over time*

Boardman, Chapter 9 – Future Impacts and Handling Inflation

Boardman, Chapter 10 – Social Discount Rate

---

### **Week 5**

#### *CBA of Social Programs*

Boardman, Chapter 14 – Valuing Impacts from Observed Behavior, Direct Methods

Reynolds, A., Temple, J., White, B., Ou, S.-R., & Robertson, D. (2011). Age-26 Cost-Benefit Analysis of the Child-Parent Center Early Education Program. *Child Development*, 82(1), 1–36.  
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3817956/>

---

### **Weeks 6 - 7**

#### *Risk*

Boardman, Chapters 11-12: Uncertainty, Risk, Option Value

Cost-Benefit Analysis Under Uncertainty, Daniel A. Graham, *The American Economic Review*  
Vol. 71, No. 4 (Sep., 1981)

Walton, 2012. A Cost-Benefit Analysis of Vaccines. *The Atlantic*. <http://www.theatlantic.com/health/archive/2012/01/a-cost-benefit-analysis-of-vaccines/251565/>

Blonn, Carlson, Mueller & Scott (2006). Transport 2020 Bus Rapid Transit: A Cost-Benefit Analysis.  
[https://www.busadvocates.org/articles/regionaltransit/CBA\\_BRT\\_FINAL\\_REPORT.pdf](https://www.busadvocates.org/articles/regionaltransit/CBA_BRT_FINAL_REPORT.pdf)

#### *Uncertainty*

Sunstein, 2003. Terrorism & probability neglect. *J. of Risk & Uncertainty*, 26, 121–136. doi:10.1023/A:1024111006336

[https://www.researchgate.net/publication/5152352\\_Terrorism\\_and\\_Probability\\_Neglect](https://www.researchgate.net/publication/5152352_Terrorism_and_Probability_Neglect)

Sunstein, 2013. Irreversible and Catastrophic. Cornell Law Review. <http://cornelllawreview.org/files/2013/03/Sunstein.pdf>

Mueller & Stewart, 2014. Evaluating Counterterrorism Spending. J. Economic Literature. <http://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.28.3.237>

M. V. Ramana 2011 Beyond our Imagination: Fukushima and the Problem of Assessing Risk, <https://thebulletin.org/2011/04/beyond-our-imagination-fukushima-and-the-problem-of-assessing-risk/>

---

**Week 8**  
***Indirect Valuation Methods***

Boardman, Chapter 15 and 16 – Valuing Impacts from Observed Behavior, Indirect Methods, Contingent Valuation

Hausman, J. (2012). “Contingent Valuation: From Dubious to Hopeless.” J. Economic Perspectives. <https://www.aeaweb.org/articles?id=10.1257/jep.26.4.43>

Kling et al 2012. “From Exxon to BP: Has Some Number Become Better than No Number?” J. Economic Perspectives. <https://www.aeaweb.org/articles?id=10.1257/jep.26.4.3>

Rosenthal & Nelson. “Why Existence Value Should *Not* Be Used in Cost-Benefit Analysis.”

Kopp. “Why Existence Value Should be Used in Cost-Benefit Analysis.”

Both are in this issue of J. Policy Analysis & Mgt., 1992. <http://onlinelibrary.wiley.com/doi/10.1002/pam.v11:1/issuetoc>

“Travel Cost Method,” Methods, Section 4, Ecosystem Valuation. [http://www.ecosystemvaluation.org/travel\\_costs.htm](http://www.ecosystemvaluation.org/travel_costs.htm)

Carson et al, 2003. “Contingent Valuation & Lost Passive Use: Damages from the Exxon Valdez Oil Spill.” *Env. & Resource Econ.* <http://econweb.ucsd.edu/~rcarson/papers/ExxonERE.pdf>

Thompson et al 2002. “Valuing the Arts: A Contingent Valuation Approach.” J. of Cultural Economics. <http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1048&context=cbafacpub>

**Supplemental:**

Johannesson, Magnus, and Johansson, Per-Olov. “Quality of Life and WTP for an Increased Life Expectancy at an Advanced Age.” *Journal of Public Economics*, 65(1997), 219-228. <https://www.sciencedirect.com/science/article/pii/S0047272797000145>

Loomis 2001. “Final Snake River Contingent Value Methodology Study Report.” US BLM. [https://www.researchgate.net/publication/252777772\\_FINAL\\_SNAKE\\_RIVER\\_CONTINGENT\\_VALUE\\_METHODOLOGY\\_STUDY\\_REPORT](https://www.researchgate.net/publication/252777772_FINAL_SNAKE_RIVER_CONTINGENT_VALUE_METHODOLOGY_STUDY_REPORT)  
<http://www.blm.gov/style/medialib/blm/wy/programs/planning/rmps/SnakeRiver/feis.Par.32841.File.dat/16app6.pdf>

Nahuelhual, Loureiro & Loomis 2004. “Using Random Parameters to Account for Heterogeneous Preferences in Contingent Valuation of Public Open Space.” *J. Agricultural & Resource Econ.* <http://www.jstor.org/stable/40987248>

Fleming & Cook 2007. “The Recreational Value of Lake McKenzie, Fraser Island: An Application of the Travel Cost Method.” *Tourism Management.* <http://ageconsearch.umn.edu/bitstream/10382/1/cp07fl02.pdf>

## *Valuation of a Statistical Life (VSL) & Statistical Life-years (VSLY)*

Boardman, Chapter 17 – Shadow Prices from Secondary Sources

Viscusi, W. Kip, “Estimating the Value of a Statistical Life Using Census of Fatal Occupational Injuries Data.” Vanderbilt University Law School, Law and Economics 2013. [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2291727](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2291727).

Viscusi, W. Kip. “Using Data from the Census of Fatal Occupational Injuries to Estimate the ‘Value of a Statistical Life.’” US Bureau of Labor Statistics, Monthly Labor Review, 2013. <http://www.bls.gov/opub/mlr/2013/article/pdf/using-data-from-the-census-of-fatal-occupational-injuries-to-estimate-the.pdf>

Aldy, Joseph & W. Kip Viscusi. “Adjusting the Value of a Statistical Life for Age & Cohort Effects.” R. Econ. & Statistics, 2008. [https://law.vanderbilt.edu/files/archive/279\\_Adjusting-VSL-for-Age-and-Cohort-Effects.pdf](https://law.vanderbilt.edu/files/archive/279_Adjusting-VSL-for-Age-and-Cohort-Effects.pdf)

### **Supplemental:**

Sunstein, C. R. (2013). The value of a statistical life: some clarifications and puzzles. *Journal of Benefit-Cost Analysis*, 4(2004), 237–261. <https://www.cambridge.org/core/services/aop-cambridge-core/content/view/S2194588800000609>

---

## **Week 9**

### *Cost-Effectiveness Analysis*

Boardman, Chapter 18 – Cost-Effectiveness

Robberstad 2005. “QALYs vs DALYs vs LYs gained: What are the differences, and what difference do they make for health care priority setting?” *Norsk Epidemiologi*.

[https://www.researchgate.net/publication/41758117\\_QALYs\\_vs\\_DALYS\\_vs\\_LYs\\_gained\\_What\\_are\\_the\\_differences\\_and\\_what\\_difference\\_do\\_they\\_make\\_for\\_health\\_care\\_priority\\_setting](https://www.researchgate.net/publication/41758117_QALYs_vs_DALYS_vs_LYs_gained_What_are_the_differences_and_what_difference_do_they_make_for_health_care_priority_setting)

### **Supplemental:**

Policy Perspective Economic Evaluation for Health Investments En Route to Universal Health Coverage: Cost-Benefit Analysis or Cost-Effectiveness Analysis? Anthony J. Culyer, DEcon 1,\* , Kalipso Chalkidou, PhD 2

[https://www.valueinhealthjournal.com/article/S1098-3015\(18\)32245-9/fulltext?\\_returnURL=https%3A%2F%2Flinkinghub.elsevier.com%2Fretrieve%2Fpii%2FS1098301518322459%3Fshowall%3Dtrue](https://www.valueinhealthjournal.com/article/S1098-3015(18)32245-9/fulltext?_returnURL=https%3A%2F%2Flinkinghub.elsevier.com%2Fretrieve%2Fpii%2FS1098301518322459%3Fshowall%3Dtrue)

Dhaliwal et al, 2012. “Comparative Cost-Effectiveness Analysis to Inform Policy in Developing Countries: A General Framework with Applications for Education.” Working paper. <http://economics.mit.edu/files/6959>

Profit et al 2009. “Clinical Benefits, Costs, and Cost-Effectiveness of Neonatal Intensive Care in Mexico.” *PLoS Medicine*. <http://www.ncbi.nlm.nih.gov/pubmed/21179496>

Meltzer 1997. “Accounting for Future Costs in Medical Cost-Effectiveness Analysis.” *J. Health Economics*. <http://www.sciencedirect.com/science/article/pii/S0167629696005073>



### *Optional Readings - Economic Impact Analysis*

A User Guide for CAHSEIM: The Culture, Arts, Heritage and Sport Economic Impact Model

<https://www.canada.ca/en/canadian-heritage/corporate/publications/general-publications/culture-arts-heritage-sport-economic-impact-model/user-guide-culture-arts-heritage-sport-economic-impact-model.html>

Sanderson et al 2015. “Analysis of the Boston 2024 Proposed Summer Olympic Plans.”

<http://www.mass.gov/governor/docs/news/final-brattle-report-08-17-2015.pdf>

Shaffer 2003. “A Cost-Benefit Analysis of the Proposed Vancouver 2010 Winter Olympic and Paralympic Games.”

[http://www.policyalternatives.ca/sites/default/files/uploads/publications/BC\\_Office\\_Pubs/olympics\\_costbenefit.pdf](http://www.policyalternatives.ca/sites/default/files/uploads/publications/BC_Office_Pubs/olympics_costbenefit.pdf)

Tootelian & Varshney, 2007. “Chicago 2016 Economic Impact Analysis.”

<https://nogames.files.wordpress.com/2009/06/chicago-2016-economic-impact-analysis.pdf>

Watkins & Anderson 2009. “The Likely Economic Impact of a Chicago 2016 Summer Olympics.”

[http://www.andersoneconomicgroup.com/Portals/0/upload/AEG\\_chicago\\_olympics\\_final.pdf](http://www.andersoneconomicgroup.com/Portals/0/upload/AEG_chicago_olympics_final.pdf)

Watkins et al 2014. “ArtPrize 2013: Economic Impact and Attendee Profile.”

[http://www.andersoneconomicgroup.com/portals/0/artprize\\_2013econimpact\\_aeg010914.pdf](http://www.andersoneconomicgroup.com/portals/0/artprize_2013econimpact_aeg010914.pdf)