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| Fall 2019 | National School of Development |
| Instructor: | Peking University |
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Topics in Health Economics

9:00-12:00, Fridays, Zhifuxuan Conference Room

Course Description

Health economics is split between studies of health system and population health. While the former focuses on the design of the health care sector – the system of hospitals and health insurance, the latter is mainly concerned of population health. While the graduate course entitled “Advanced Health Economics” by Professor Ling Li mainly focuses on the health care sector, this course focuses on the latter. Specifically, the goal of this course is to survey the empirical literature on the importance of health to the economy and individual labor market performance, and various factors that affect health..

1. Grading

Grades will be based on class participation (40%), a research proposal (20%) and final term paper (40%). Each student is expected to present at least once every two weeks. The paper will be an empirical research on a subject related to health in China, preferably using the CHARLS data. Proposal is due on November 16 and final paper is due on January 10.

Outline and Tentative schedule

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| Topics |  | Week | date |
| 1 | Introduction – Health trends around the world | 1 | 9/20 |
| 2 | Value of mortality declines and other health improvement | 2 | 9/27 |
| 3 | Effects of health on economic development | 3 | 10/7 |
| 4 | Human Capital Model of Health and Health behavior | 4-5 | 10/12,20 |
| 5 | The Bidirectional Relationship between Health and SES | 6 | 10/25 |
| 6 | Education and health | 7 | 10/31 |
| 7 | Wealth and health | 8 | 11/1 |
|  | Report Proposal  | 9 | 11/7 |
| 8 | Economic shock and health | 10 | 11/23 |
| 9 | The Effect of Environmental Pollution on Health  | 11 | 11/29 |
| 10 | Fetal Origin Hypothesis | 12 | 12/7 |
| 11 | China Famine Studies  | 13 | 12/14 |
| 12 | Childhood health  | 14 | 12/21 |
|  | Report Final paper  | 15 | 12/28 |

**General References**

1. **Introduction – demographic transition**

T. R. Malthus. An Essay on the Principle of Population. Cambridge University Press,

Cambridge, 1992, Book I, Chapters I and II; Book II, Chapter XIII; Book IV, Chapter XIV.

\*Ronald Lee (2003). “The demographic transition: Three centuries of fundamental change,” *Journal of Economic Perspectives*, 17(4):167-190, 2003.

\*Guinnane, T. W. (2011). The historical fertility transition: A guide for economists. *Journal of Economic Literature 49*(3), 589–614.

Kremer, Michael (1993) “Population Growth and Technological Change: One Million B.C. to 1990,” *Quarterly Journal of Economics*, 108, 3: 681-716.

Wolpin, K. (1996), “Determinants and Consequences of the Mortality and Health of Infants and Children.” in M.R. Rosenzweig and O. Stark, editors, Handbook of Population and Family Economics, North Holland, 1996.

\*Cutler, David, Angus Deaton, and Adriana Lleras-Muney, “The Determinants of Mortality,” *Journal of Economic Perspectives*, 2006, 20(3), 97-120.

Fogel, Robert W., “Economic Growth, Population Theory, and Physiology: The Bearing of Long-Term Processes on the Making of Economic Policy,” *American Economic Review,* 1994, 84(3), 369-395.

Bloom, David E. and David Canning, “The Health and Wealth of Nations,” *Science*, 2000, 287(5456), 1207-1208.

Brainerd, Elizabeth, and David Cutler, “Autopsy on an Empire: Understanding Mortality in Russia and the Former Soviet Union,” *Journal of Economic Perspectives*, 2005, 19(1), 107-130.

Costa, Dora, “Health and the Economy in the United States, from 1750 to the Present,” *Journal of Economic Literature,* 2015, 53(3), 503–570.

Deaton, Angus, *The Great Escape: Health, Wealth, and the Origins of Inequality,* Princeton, NJ: Princeton University Press, 2013, Part I, 59-164.

Case, Anne, and Angus Deaton, “Mortality and Morbidity in the 21st Century,” Brookings Papers on Economic Activity, 2018.

1. **Value of mortality declines and other health improvements**

Becker, Gary S., Tomas J. Philipson and Rodrigo R. Soares (2005), “The quantity and quality of life and the evolution of world inequality,” *American Economic Review*, 95(1), 277-291.

Robert E Hall and Charles I Jones (2007). “The Value of Life and the Rise in Health Spending,” *Quarterly Journal of Economics*, vol. 122(1), pages 39-72, 02.

Nordhaus, William (2002). “The Health of Nations: The Contribution of Improved Health to Living Standards,” in *The Economic Value of Medical Research*. Kevin Murphy and Robert Topel, eds. Chicago: University of Chicago Press.

\*Murphy, Kevin M. and Robert H. Topel (2006). “The Value Of Health And Longevity,” *Journal of Political Economy*, v. 114(4,Aug), 871-904.

Ashenfelter, Orley and Michael Greenstone (2004). “Using Mandated Speed Limits to Measure the Value of a Statistical Life,” *Journal of Political Economy*, 112(1, Pt. 2).

Cutler, David, Allison B. Rosen, and Sandeep Vijan, “Value of Medical Innovation in the United States: 1960-2000,” *New England Journal of Medicine*, 2006; 355(9), 920-927.

1. **Effects of health on economic development**

Acemoglu, Daron and Simon Johnson (2007). “Disease and Development: The Effect of Life Expectancy on Economic Growth.” *Journal of Political Economy* 115, pp. 925-985.

Weil, David N. (2007). “Accounting for the Effect of Health on Growth,” *Quarterly Journal of Economics*, Vol. 122, No. 3: 1265–1306.

Weil, David (2014). "Health and Economic Growth" in Aghion and Durlauf, eds., *The Handbook of Economic Growth* Volume 2B, North Holland.

Fogel, R. W. (1994). “Economic growth, population theory, and physiology: The bearing of long-term processes on making of health policy.” *American Economic Review* 84 (3), 369–395.

Thomas, Duncan et al. (2006), “Causal Effect of Health on Labor Market Outcomes:

Experimental Evidence,” mimeo, UCLA.

Kremer, Michael, and Rachel Glennerster, Improving Health in Developing Countries: Evidence from Randomized Evaluations, *Handbook of Health Economics, Volume 2.*

Bleakley, Hoyt (2007). “Disease and Development: Evidence from Hookworm Eradication in the American South,” *Quarterly Journal of Economics* Vol. 122, No. 1, Pages 73-117.

Bleakley, Hoyt, “Malaria Eradication in the Americas: A Retrospective Analysis of Childhood Exposure,” *American Economic Journal: Applied Economics, 2010, 2(2), 1-45.*

Field, Erica, Omar Robles and Maximo Torero, “Iodine deficiency and schooling attainment in Tanzania,” *American Economic Journal: Applied Economics*, 2009, 1(4), 140–69.

Cutler, David, and Grant Miller, “The role of public health improvements in health advances: the twentieth-century United States,” *Demography*, 2005 42(1), 1-22.

Alsan, Marcella, and Claudia Goldin, “Watersheds in Infant Mortality: The Role of Effective Water and Sewerage Infrastructure, 1880 to 1915,” Forthcoming, *Journal of Political Economy.*

Kremer, Michael, Jessica Leino, Edward Miguel, and Alix Peterson Zwane, “Spring Cleaning: Rural Water Impacts, Valuation, and Property Rights Institutions,” *Quarterly Journal of Economics*, 2011, 126(1), 145-205.

1. **Modeling individual behaviors**

Becker, G. (2007) “Health as human capital: synthesis and extensions,” Oxford Economic Papers, 59, 379–410.

Grossman, M. (1972), ''On the Concept of Health Capital and the Demand for Health,'' *Journal of Political Economy*, v. 80, 223-50.

Grossman, Michael. 2004. The Demand for Health, 30 Years Later: A Very Personal Retrospective and Prospective Reflection. *Journal of Health Economics*, 23, 629–636.

Grossman, M., ‘The Health Human Capital Model’, Chapter in *Handbook of Health Economics*.

Gruber, Jonathan and Botond Koszegi, “Is Addiction 'Rational'? Theory and Evidence,” *Quarterly Journal of Economics*, 2001, 116(4), 1261-1303.

Oster, Emily, Ira Shoulson, and E. Ray Dorsey, “Optimal Expectations and Limited Medical Testing: Evidence from Huntington Disease,” *American Economic Review*, 2013, 103(2): 804-830.

Bernheim, B. Douglas, and Antonio Rangel, “Addiction and Cue-Triggered Decision Processes,” *American Economic Review*, 2004, 94(5), 1558-90.

Handel, Ben and Joshua Schwartzstein, “Frictions or Mental Gaps: What's Behind the Information We (Don't) Use and When Do We Care?” *Journal of Economic Perspectives,* 2018, 32(1): 155-178.

Laibson, David, “Golden Eggs and Hyperbolic Discounting,” *Quarterly Journal of Economics*, 1997, 112(2), 443-477.

Dupas, Pascaline (2011) “Health Behavior in Developing Countries,” *Annual Review of*

*Economics* Vol. 3, pp. 425-449.

Cutler DM, Glaeser EL, Shapiro JM. (2003) “Why have Americans become more obese?” *Journal of Economic Perspectives*. 17(3):93-118.

Chaloupka, Frank and Kenneth E. Warner, “The Economics of Smoking,” in Anthony J. Culyer and Joseph Newhouse, eds., *Handbook of Health Economics*, Amsterdam: North-Holland, 2000.

De Walque, Damien, “Education, information, and smoking decisions: evidence from smoking histories, 1940-2000,” *Journal of Human Resources*, 2010, 45(3), 682-717.

Dupas, Pascaline, (2009) “What matters (and what does not) in households' decision to invest in malaria prevention? *American Economic Review P&P* 99(2): 224-230, May 2009.

Manning, Willard, Emmett Keeler, Joseph Newhouse, Elizabeth Sloss, and Jeffrey Wasserman, “The Taxes of Sin: Do Smokers and Drinkers Pay Their Way?” *JAMA*, 1989, 261(11), 1604-9.

Asch, David A., et al., “Effect of Financial Incentives to Physicians, Patients, or Both on Lipid Levels: A Randomized Clinical Trial,” *JAMA,* 2015; 314(18):1926-1935.

Volpp, Kevin, et al., “A Randomized, Controlled Trial of Financial Incentives for Smoking Cessation,” *New England Journal of Medicine*, 2009, 360:699-709.

Volpp, Kevin, Leslie K. Joh, Andrea B. Troxel, et al., (2008) “Financial Incentive–Based Approaches for Weight Loss: A Randomized Trial,” *Journal of the American Medical Association*. 300(22):2631-2637

Sood, Neeraj, and Dana Goldman, “HIV Breakthroughs and Risky Sexual Behavior,” *Quarterly Journal of Economics*, 2006, 121(3): 1063-1102.

Baicker, Katherine, Sendhil Mullainathan, and Joshua Schwartzstein, “Behavioral Hazard in Health Insurance,” *Quarterly Journal of Economics,* 2015, 130(4), 1623-1667.

1. **The Bidirectional Relationship between Health and SES**

Smith, J.P. (1999). “Healthy Bodies and Thick Wallets: The Dual Relation between Health and Economic Status,” Journal of Economic Perspectives, 13(2): 145-167.

Adams, P., M. Hurd, D. McFadden, A. Merrill and T. Ribeiro. (2003). “Healthy, Wealthy, and Wise? Tests for Direct Causal Paths Between Health and Socioeconomic Status,” Journal of Econometrics, 112(1): 3-56.

James Banks, Michael Marmot, Zoe Oldfield, Smith James, “Disease and Disadvantage in the US and in England,” JAMA 2005

Banks, J., M. Marmot, Z. Oldfield and J.P. Smith. (2006). “The SES-Health Gradient on Both Sides of the Atlantic,” NBER Working Paper 12674; forthcoming in Economics of Aging, NBER Conference volume.

Goldman, Noreen “Social Inequalities in Health: Disentangling the Underlying Mechanisms,” Office of Population Research, Princeton University, 2001

Smith, J.P. and R. Kington. (1997). “Demographic and Economic Correlates of Health in Old Age,” Demography, 34: 159–170.

Smith, J.P. (2004). “Unraveling the SES-Health Connection,” Population and Development Review Supplement: Aging, Health and Public Policy: Demographic and Economic Perspectives, 30: 108-132.

Cutler, David M., Lleras-Muney, Adriana, & Vogl, Tom. 2008 (September). Socioeconomic Status and Health: Dimensions and Mechanisms. Working Paper 14333. National Bureau of Economic Research. Forthcoming, Oxford Handbook of Health Economics

Smith, J.P. (2007). “The Impact of Socioeconomic Status on Health Over the Life-Course.” Journal of Human Resources, 42(4): 739-764.

Smith, J.P. (2005) “Consequences and Predictors of New Health Events,” in D.A. Wise (ed.), Analyses in the Economics of Aging, Chicago: University of Chicago Press, pp. 213-237.

Schultz, T.P., (1984). Studying the impact of household economic and community variables on child mortality, in L. Chen and H. Mosley (eds.), Child Survival: Strategies for Research, Supplement to Population and Development Review, 10:215-235.

Thomas, D., J. Strauss and M.-H. Henriques, (1990). "Child Survival, Height-for-Age and Household Characteristics in Brazil", Journal of Development Economics, 33.2:333-364.

1. **SES and Health, the case of education**

Lleras-Muney, Adriana. 2005b. The Relationship between Education and Adult Mortality in the United States. *Review of Economic Studies*, 72(1), 189–221.

Cutler, David and Adriana Lleras-Muney, “Understanding Differences in Health Behavior by Education,” *Journal of Health Economics*, 2010, 29(1), 1-28.

Mazumder, Bhashkar. 2007. How Did Schooling Laws Improve Long-Term Health and Lower Mortality? *Federal Reserve Bank of Chicago WP 2006-23*, January.

Clark Damon and Heather Royer (2013) "The Effect of Education on Adult Mortality and

Health: Evidence from Britain" *American Economic Review*, 103(6): 2087-2120.

McCrary, Justin, & Royer, Heather. 2006. The Effect of Female Education on Fertility and Infant Health: Evidence from School Entry Policies Using Exact Date of Birth. *NBER Working Paper No. 12329*, June.

Jayachandran, Seema and Adriana Lleras-Muney (2009). “Life expectancy and human capital investments: Evidence from declines in maternal mortality,” *Quarterly Journal of Economics,* Vol. 124, No. 1: 349–397.

Oster, Emily, Ira Shoulson and Ray Dorsey (2013). “Limited Life Expectancy, Human Capital and Health Investments,” *American Economic Review*, **103**:5, 1977-2002.

Cunha, Flavio; Heckman, James (2007). “The Technology of Skill Formation.” *American*

*Economic Review* 97(2): 31-47.

Heckman, James J., John Eric Humphries, and Greg Veramendi, “Education, Health and Wages,” *Journal of Political Economy,* 2018, 126(S1): S197-S246.

Heckman, James, Rodrigo Pinto and Peter Savelyev (2013). “Understanding the Mechanisms through Which an Influential Early Childhood Program Boosted Adult Outcomes,” *American Economic Review*, vol. 103(6), pages 2052-86, October.

Currie, Janet, and Enrico Moretti, “Mother's Education and the Intergenerational Transmission of Human Capital: Evidence from College Openings,” *Quarterly Journal of Economics*, 2003, 118(4), 1495-1532.

Goldman, Dana, and James Smith, “Can patient self-management help explain the SES health gradient?” *Proceedings of the National Academy of Science*, 2002, 99(16), 10929-34.

1. **Wealth and health**

Aizer, Anna , Shari Eli, Joe Ferrie and Adriana Lleras-Muney (2016) “The Long Run Impact of Cash Transfers to Poor Families” *American Economic Review*. 106(4): 935-71, April 2016

Imbens G, Rubin D, Sacerdote B, “Estimating the effect of unearned income on labour earnings, savings, and consumption: evidence from a survey of lottery players.” [AMERICAN ECONOMIC REVIEW, VOL. 91, NO. 4, SEPTEMBER 2001](https://www.aeaweb.org/issues/146) (pp. 778-794)

Kuhn, Peter, Peter Kooreman, Adriaan Soetevent, and Arie Kapteyn. 2011. “The Effects of Lottery Prizes on Winners and Their Neighbors: Evidence from the Dutch Postcode Lottery.” American Economic Review 101(5):2226–47.

Lovenheim, Michael and Kevin Mumford. 2013. “Do Family Wealth Shocks Affect Fertility Choices? Evidence from the Housing Market.” The Review of Economics and Statistics 95(2):464–75.

Meer, Jonathan, Douglas L. Miller, and Harvey S. Rosen. 2003. “Exploring the Health–Wealth Nexus.” Journal of Health Economics 22(5):713–30.

Jensen, Robert T. and Kaspar Richter. 2004. “The Health Implications of Social Security Failure: Evidence from the Russian Pension Crisis.” Journal of Public Economics 88(1):209–36.

1. **Economic shocks and health**

Ruhm, C.J. (2000). “Are recessions good for your health?” *Quarterly Journal of Economics* 115/2: 617-650.

Frankenberg, E., J.P. Smith and D. Thomas. (2003). “Economic Shocks, Wealth, and Welfare,” Journal of Human Resources, 38(2): 280-321.

Friedman, J. and D. Thomas. (2007). “Psychological Health Before, During, and After an Economic Crisis: Results from Indonesia, 1993–2000,” World Bank Policy Research Working Paper Series No. 4386.

Sullivan., Daniel, Till von Wachter, “Job Displacement and Mortality: An Analysis Using Administrative Data.” The Quarterly Journal of Economics, Volume 124, Issue 3, August 2009, Pages 1265–1306, <https://doi.org/10.1162/qjec.2009.124.3.1265>

1. **The Effect of Environmental Pollution on Health**

Harrington, Winston, & Portney, Paul R. 1987. Valuing the Benefits of Health and Safety Regulation. *Journal of Urban Economics*, 22(1), 101–112.

Zivin, Joshua Graff, & Neidell, Matthew. 2009. Days of Haze: Environmental Information Disclosure and Intertemporal Avoidance Behavior. Journal of Environmental Economics and Management 58 (2009) 119–128

Lleras-Muney, Adriana. 2005 (July). *The needs of the Army: using compulsory relocation in the military to estimate the effect of air pollutants on childrens health*. Princeton University, Department of Economics.

Chay, Kenneth Y., & Greenstone, Michael. 2003. The Impact of Air Pollution on Infant Mortality: Evidence from the Geographic Variation in Pollution Shocks Induced by a Recession. *Quarterly Journal of Economics*, 118(3), 1121–1167.

Chay, Kenneth Y., & Greenstone, Michael. Air Quality, Infant Mortality, and the Clean Air Act of 1970, NBER Working Paper No. 10053, 2003

Ebenstein, Avraham, The Consequences of Industrialization: Evidence from Water Pollution and Digestive Cancers in China, working paper, University of California, Berkeley, 2009

Currie, Janet and Matthew Neidell, Air Pollution and Infant Health: What Can We Learn From California's Recent Experience? QJE 2005

Deschenes, Olivier and Enrico Moretti, Extreme Weather Events, Mortality, and Migration, The Review of Economics and Statistics, 2009

Deschnes, Olivier, & Greenstone, Michael. 2007. Climate Change, Mortality, and Adaptation: Evidence from Annual Fluctuations in Weather in the US. *NBER Working Paper No. 13178*, June.

Mark M. Pitt, Mark R. Rosenzweig, Md. Nazmul Hassan, “Sharing the Burden of Disease: Gender, the Household Division of Labor and the Health Effects of Indoor Air Pollution in Bangladesh and India”

1. **Fetal Origin Hypothesis**

Barker, D.J.P. (1997). “Maternal Nutrition, Fetal Nutrition and Diseases in Later Life,” Nutrition 13(9): 807-813.

Ravelli, A.C.J., J.H.P. van der Meulen, R.P.J. Michels, C. Osmond, D. Barker, C.N. Hales, and O.P. Bleker. (1998). “Glucose Tolerance in Adults after Prenatal Exposure to Famine,” Lancet, 351: 173-177.

Almond, Douglas, and Janet Currie (2011). “Killing Me Softly: The Fetal Origins Hypothesis” *Journal of Economic Perspectives*, 25(3): 153-72.

Conti G, Hansman C, Heckman JJ, Novak MF, Ruggiero A, Suomi SJ. (2012). “Primate

evidence on the late health effects of early-life adversity,” *Proc Natl Acad Sci U S A*. 2012 109(23):8866-71.

Almond, D. (2006). Is the 1918 influenza pandemic over? Long term effects of in utero exposure in the post 1940 US population, Journal of Political Economy, 114(4):672-712.

Almond, Douglas, & Mazumder, Bhashkar. 2008. The Effects of Maternal Fasting During Ramadan on Birth and Adult Outcomes. NBER Working Paper No. 14428, October.

Almond, Doug, Lena Edlund, and Mårten Palme, “Chernobyl’s Subclinical Legacy: Prenatal Exposure to Radioactive Fallout and School Outcomes in Sweden,” *Quarterly Journal of Economics,* 2009, 124(4), 1729-1772.

Nelson, Richard E. 2008 (May). Testing the Fetal Origins Hypothesis in a Developing Country: Evidence from the 1918 Influenza Pandemic. manuscript, University of Utah.

1. **China Famine Studies**

Lin, J. Y. and D. T. Yang. (2000). “Food Availability, Entitlements and the Chinese Famine of 1959-61,” Economic Journal, 110(460): 136-158.

Almond, D., L. Edlund, H. Li and J. Zhang. (2007). "Long-term Effects of the 1959-1961 China Famine: Mainland China and Hong Kong," NBER Working Paper 13384.

Chen, Y. and L-A Zhou. (2007). “The Long-Term Health and Economic Consequences of the 1959-1961 Famine in China,” Journal of Health Economics, 26(4): 659-681.

Meng, X. and N. Qian. (2006). “The Long Run Impact of Childhood Malnutrition: Evidence from China's Great Famine,” Working Paper, Brown University and Australian National University.

Luo, Zhehui, Ren Mu, and Xiaobo Zhang, 2006. “Famine and Overweight in China,” Review of Agricultural Economics, 28(3): 296-304.

Mu and Zhang (2008). “Gender Difference in the Long-Term Impact of Famine,” working paper.

Clair, D. et al. “Rates of Adult Schizophrenia Following Prenatal Exposure to the Chinese Famines of 1959-1961,” JAMA 294(5): 557-562.

Shi, Xinzheng, “Famine, fertility, and fortune in china” China Economic Review 22 (2011) 244-259

1. **The impact of childhood health**

Behrman, J. and M. Rosenzweig (2004). The returns to birthweight, Review of Economics and Statistics, 86(2):586-601.

Currie, Janet, & Hyson, Rosemary. 1999. Is the Impact of Shocks Cushioned By Socioeconomic Status? The Case of Low Birth Weight. American Economic Review, 89(2), 245–250.

Kehrer, Barbara H., & Wolin, Charles M. 1979. Impact of Income Maintenance on Low Birth Weight: Evidence from the Gary Experiment. The Journal of Human Resources, 434-462(14), 4.

Milligan, Kevin, & Baker, Michael. 2008. Evidence from maternity leave expansions of the impact of maternal care on early child development. The Journal of Human Resources. forthcoming.

Case, Anne, Darren Lubotsky, Christina Paxson.“Economic Status and Health in Childhood: The Origins of the Gradient,” The American Economic Review, Vol. 92, No. 5 (Dec., 2002), pp. 1308-1334

Case, A., A. Fertig and C. Paxson. (2005). “The Lasting Impact of Childhood Health and Circumstance,” Journal of Health Economics, 24(2): 365-389.

Smith, J.P. (2009). “The Impact of Childhood Health on Adult Labor Market Outcomes,” The Review of Economics and Statistics.

Bozzoli, Carlos, Deaton, Angus S., & Quintana-Domeque, Climent. 2007. Child Mortality, Income and Adult Height. NBER Working Paper No. 12966, March.

Currie, Janet. 2008. Healthy, Wealthy, and Wise: Is there a Causal Relationship Between Child Health and Human Capital Development? Journal of Economic Literature. forthcoming.

Currie, Janet, “Inequality at Birth: Some Causes and Consequences,” *American Economic Review*, 2011, 101(3): 1-22.

Maccini, Sharon and Dean Yang, “Under the Weather: Health, Schooling and Socioeconomic Consequences of Early Life Rainfall,” *American Economic Review*, 2009, 99(3), 1006-1026.

Case, Anne, & Paxson, Christina. 2008. Stature and Status: Height, Ability, and Labor Market Outcomes. *Journal of Political Economy*, 116(3), 499–532.

Case, A., C. Paxson and M. Islam. (2009). .Making Sense of the Labor Market Height Premium: Evidence from the British Household Panel Survey.. Economic Letters, 102: 174-6.

Case, A. and C. Paxson. (2010a). .Causes and Consequences of Early Life Health..NBER Working Paper 15637.

Deaton, A. and R. Arora. (2009). .Life at the top: the benefits of height. Economics and Human Biology, 7(2): 133-6.

Hayward, Mark D., and Gorman, Bridget K. “The Long Arm of Childhood: The Influence of Early-Life Social Conditions on Men's Mortality,” Demography 41 (1), February 2004: 87-107.