

Econ 712: “Social Insurance: Theory, Empirical Methods and Evidence”

Department of Economics
University of Pennsylvania
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Instructor:

Professor Hanming Fang
Office: Room 429, McNeil Building
Tel: 215-898-7767
Email: hanming.fang@econ.upenn.edu

Class Schedule: M, W, 1:30-3:00pm, McNeil 169

Office Hours: By appointment (send me an e-mail to set one up)

Course Objectives:

This course is aimed to provide a comprehensive review of theory, empirical methods and evidence related to the rationale, optimal designs, and effects (both in terms of behavior and welfare) of a variety of social insurance programs such as health insurance, unemployment insurance, disability insurance, social security.

Requirement and Grading:

1. **(20%)** Occasional homework & active class participation.
2. **(40%)** A take-home examination. It will be give at the end of the term. Questions will be based on the required material on the reading list and lecture material.
3. **(40%)** A short research paper.

You are expected to pursue some topics covered in class or other related issues (subject to the approval of the instructor). The paper may consist of an empirical and/or theoretical analysis, but should contain some original aspects. You are to complete a two-page research proposal by the end of October, and you have until the end of the semester to complete the paper. Please speak to me if you have difficulty developing a topic, and we will work on it together.

The goal is to get you started on your first research project that can potentially be turned into the third-year paper later.

Syllabus and Reading List

[Papers marked with ★ are required readings]

Section 1. Introduction to Social Insurance

What is social insurance? Why does the government get involved in providing insurance? Why do we care about social insurance? What are the key questions we need to address for optimal design of social insurance programs? For an overview, read:

★ **Martin Feldstein (2005)**. “Rethinking Social Insurance.” NBER Working Paper 11250.

Section 2. Asymmetric Information: Theory, Tests and Welfare Analysis

The key reason for the government to be involved in providing insurance is the potential market failure as a result of asymmetric information. Here we review the basic theory of how asymmetric information may lead to market failure; and the tests for asymmetric information that are derived from the theory; and finally some recent empirical methods to examine the welfare effects of asymmetric information.

[A.] Theory.

The classical readings on the market failure due to asymmetric information is Akerlof’s (1970) lemon’s paper and Rothschild & Stiglitz’s analysis of competitive insurance market (1976). Arrow’s (1963) classical paper makes uncertainty and asymmetric information central focus of the economic analysis of health economics. All these papers assume one dimensional private information in the risk type of the agents.

★ **George Akerlof (1970)**. “The Market for ‘Lemons’: Quality Uncertainty and the Market Mechanism,” *Quarterly Journal of Economics* (August 1970).

★ **Michael Rothschild and Joseph Stiglitz (1976)**. “Equilibrium in Competitive Insurance Markets: An Essay on the Economics of Imperfect Information”, *Quarterly Journal of Economics*, 90 (4), 629-650.

★ **Kenneth Arrow (1963)**. “Uncertainty and the Welfare Economics of Medical Care,” *American Economic Review* Vol. 53, No. 5, 941-973.

Recently there have been some work emphasizing potential private information in other dimensions, such as risk aversion.

★ **Hemenway, David (1990)**. “Propitious Selection.” *Quarterly Journal of Economics*, Vol. 105, 1063-1069.

de Meza, David and David C. Webb (2001). “Advantageous Selection in Insurance Markets.” *Rand Journal of Economics*, Vol. 32, No. 2, 249-262.

[B.] Empirical Tests of Asymmetric Information.

The most well-known empirical tests of asymmetric information is known as the “positive association property” test, first applied in Chiappori and Salanie (2000) for automobile and Chiappori, Jullien, Salanie and Salanie (2005) showed the robustness of this test. Other applications include Cawley & Philipson (1999) for life insurance market, Finkelstein & McGarry (2006) for Long Term Care insurance market, Fang, Keane & Silverman (2008) for Medigap insurance market.

★ **Chiappori, Pierre-André and Bernard Salanié (2000)**. “Testing for Asymmetric Information in Insurance Markets.” *Journal of Political Economy*, Vol. 108, No. 1, 56-78.

★ **Chiappori, Pierre-André, Bruno Jullien, Benard Salanié and Francois Salanié (2006)**. “Asymmetric Information in Insurance: General Testable Implications.” *Rand Journal of Economics*, Vol. 37, No. 4.

Cawley, John, and Thomas Philipson (1999). “An Empirical Examination of Information Barriers to Trade in Insurance.” *American Economic Review*, 89(4): 827-846.

Finkelstein, Amy and Kathleen McGarry (2006). “Multiple Dimensions of Private Information: Evidence from the Long-Term Care Insurance Market.” *American Economic Review*, Vol. 96, No. 4, 938-958.

★ **Fang, Hanming, Michael P. Keane and Dan Silverman (2008)**. “Sources of Advantageous Selection: Evidence from the Medigap Insurance Market.” *Journal of Political Economy*, Vol. 116, No. 2, 303-350.

However, “positive correlation property” is not the unique implication from the presence of asymmetric information. The following papers use different angles to examine the presence of asymmetric information.

Finkelstein, Amy and James Poterba (2004). “Adverse Selection in Insurance Markets: Policyholder Evidence from the U.K. Annuity Market.” *Journal of Political Economy*, Vol. 112, 183-208.

★ **Cohen, Alma and Liran Einav (2007)**. “Estimating Risk Preferences from Deductible Choice.” *American Economic Review*, Vol. 97, No. 3, 745-788.

[C.] Welfare Effects of Asymmetric Information

The frontier of this research area lies in welfare analysis of asymmetric information in insurance context. The following list is almost exhaustive about the existing literature.

★ **Finkelstein, Amy, Liran Einav and Paul Schrimpf (2007)**. “The Welfare Cost of Asymmetric Information: Evidence from the U.K. Annuity Market.” NBER Working Paper 13228.

Josh Lustig (2007). “The Welfare Effects of Adverse Selection in Privatized Medicare.” mimeo, Boston University.

★ **Einav, Liran, Amy Finkelstein and Mark R. Cullen (2008)**. “Estimating Welfare in Insurance Markets Using Variation in Prices.” mimeo, Stanford University and MIT.

Bundorf, Kate, Jonathan Levin and Neale Mahoney (2008). “Pricing, Matching and Efficiency in Health Plan Choice.” mimeo, Stanford University.

Cutler, David and Sarah Reber (1998). “Paying for Health Insurance: The Trade-off between Competition and Adverse Selection,” *Quarterly Journal of Economics*, 113(2), 433-466.

[D.] Moral Hazard vs. Adverse Selection: Identification Results

The above papers do not distinguish moral hazard from ex ante adverse selection. The papers below attempted to do so.

★ **Abbring Jaap, P.A. Chiappori and J. Pinquet (2003)**. “Moral Hazard and Dynamic Insurance Data.” *Journal of the European Economic Association*, 1,4, 767-820.

★ **Abbring J. H., J. J. Heckman, P. A. Chiappori and J. Pinquet (2003)**. “Adverse Selection and Moral Hazard In Insurance: Can Dynamic Data Help to Distinguish?” *Journal of the European Economic Association* 1, 512–521.

Olivia Ceccarini (2007). “Does Experience Rating Matter in Reducing Accident Probabilities? A Test for Moral Hazard.” mimeo, University of Pennsylvania

★ **Abbring, Jaap, Chiappori, Pierre-André, and Tibor Zavadil (2008)**. “Better Safe than Sorry? Ex Ante and Ex Post Moral Hazard in Dynamic Insurance Data.” mimeo, Columbia University.

An interesting emerging literature is a theoretical investigation regarding the general issue of identification of adverse selection in structural models. See the paper below as a starting point.

★ **Xavier d’Haultfoeuille and Philippe Février (2007)**. “Identification and Estimation of Incentive Problems: Adverse Selection.”

Section 3. Health Care Systems: Theory and Evidence

Health care reform is one of the most important policy issues in the US. There are numerous angles from which one can examine the issues related to the health care system. I will touch upon only two issues, reclassification risk insurance, and dynamic externalities.

[A.] Health as Human Capital and Its Measurement

★ **Grossman, Michael (1972)**. “On the Concept of Health Capital and the Demand for Health.” *Journal of Political Economy*, Vol. 80, No. 2, 223-255.

Grossman, Michael (2000). “The Human Capital Model. ” In *Handbook of Health Economics*, Volume 1A, edited by Anthony J. Culyer and Joseph P. Newhouse. Amsterdam: North-Holland, Elsevier Science, 347-408.

D. Cutler and E. Richardson (1997). “Measuring the Health of the United States Population”, *Brookings Papers on Economic Activity, Microeconomics*, 217-271.

[B.] Reclassification Risk: Theory and Evidence

Reclassification risk is the risk that consumers face in future insurance premiums. There is no long-term health insurance currently in the U.S. This could lead to significant welfare loss.

★ **Peter Diamond (1992)**. “Organizing the Health Insurance Market,” *Econometrica*, 60, 1233-1254.

★ **John Cochrane (1995)**. “Time Consistent Health Insurance”, *Journal of Political Economy*, 103 (3), 445-473.

★ **Hendel, Igal and Alessandro Lizzeri (2003)**. “The Role of Commitment in Dynamic Contracts: Evidence from Life Insurance.” *Quarterly Journal of Economics*, Vol. 118, No. 1, 299-327.

★ **Finkelstein, Amy, Kathleen McGarry and Amir Sufi (2005)**. “Dynamic Inefficiencies in Insurance Markets: Evidence from Long-Term Care Insurance.” *American Economic Review Papers and Proceedings*, 95:224-228

★ **Fang, Hanming and Edward Kung (2008)**. “How Does the Life Settlement Market Affect the Primary Life Insurance Market?” mimeo, Duke University.

Fang, Hanming and Edward Kung (2008). “Why Do Life Insurance Policyholders lapse? Loss of Bequest Motives vs. Liquidity Shocks, work in progress, Duke University.

[C.] Dynamic Externalities

Health insurance in the US is mostly tied to employment. There is neither universal, nor single-payer, health insurance in the US and this leads to dynamic inefficiencies.

★ **Fang, Hanming and Alessandro Gavazza (2009)**. “Dynamic Inefficiency in an Employment-Based Health Insurance System: Theory and Evidence.” NBER Working Paper No. 13371.

Herring, Bradley (2006). “Sub-optimal Coverage of Preventive Care Due to Market-Level Turnover Among Private Insurers.” Unpublished Working Paper. Emory University School of Public Health.

Cebul, Randall, Ray Herschman, James B. Rebitzer, Lowell J. Taylor and Mark Votruba (2007). “Employer-Based Insurance Markets and Investments in Health.”

[D.] Demand and Supply of Medical Care, Interacting with Health Insurance

Martin Feldstein (1973). “The Welfare Loss of Excess Health Insurance”, *Journal of Political Economy*, 81(2), part I, 251-280.

Mark Pauly (1986). “Taxation, Health Insurance, and Market Failure in Medical Care”, *Journal of Economic Literature*, 24(2), 629-675.

★ **W. Manning et al. (1987)**. “Health Insurance and the Demand for Medical Care: Evidence from a Randomized Experiment”, *American Economic Review*, 77(3), 251-177.

David Cutler (1995). “The Incidence of Adverse Medical Outcomes Under Prospective Payment”, *Econometrica*, 63(1), 29-50.

★ **Amanda Kowalski (2009)**. “Censored Quantile Instrumental Variable Estimates of the Price Elasticity of Expenditure on Medical Care”. NBER Working Paper 15085.

[E.] Health Insurance and Labor Market Outcomes

★ **Madrian, Brigitte C. (1994)**. “Employment-Based Health Insurance and Job Mobility: Is There Evidence of Job Lock?” *Quarterly Journal of Economics*, Vol. 109, No. 1, 27-54.

Gruber, Jonathan and Brigitte C. Madrian (1994). “Health Insurance and Job Mobility: The Effects of Public Policy on Job-Lock.” *Industrial and Labor Relations Review*, Vol. 48, No. 1, 86-102.

Gruber, Jonathan and Brigitte C. Madrian (1997). “Employment Separation and Health Insurance Coverage.” *Journal of Public Economics*, Vol. 66, No. 3, 349-382.

Gruber, Jonathan and Brigitte C. Madrian (2002). “Health Insurance, Labor Supply and Job Mobility: A Critical Review of the Literature.” NBER Working Paper 8817.

★ **Dey, M. and C. Flinn (2005).** “An Equilibrium Model of Health Insurance Provision and Wage Determination.” *Econometrica* 73, 571-627.

Dey, M. and C. Flinn (2008). “Household Search and Health Insurance Coverage.” *Journal of Econometrics*, 145 July, 43-63.

Currie, J. and B. Madrian (1999). “Health, Health Insurance, and the Labor Market,” in *Handbook of Labor Economics*, Volume 3C: 3309-3416. Amsterdam: North Holland.

Section 4. Unemployment Insurance: Theory and Evidence

For the institutional background related to the unemployment insurance system in the US, see:

Katherine Baicker, Claudia Goldin, and Larry Katz (1998). “A Distinctive System: Origins and Impacts of U.S. Unemployment Compensation,” in *The Defining Moment: The Great Depression and the American Economy*, University of Chicago Press, 1998 (NBER Working Paper No. 5889).

[A.] Theory and Evidence of Optimal Unemployment Insurance (Static Models)

The static models for optimal unemployment insurance are Baily (1978), extended further by Chetty (2006). Theoretical results on the optimal unemployment insurance are useful only if one has reliable estimates regarding the effect of UI benefit on unemployment duration, and the consumption smoothing from UI. Meyer (1990) and Gruber (1995) are classical studies on these two issues. Meyer (1995) summarizes.

★ **Baily, Martin (1978).** “Some Aspects of Optimal Unemployment Insurance,” *Journal of Public Economics*, 10, 379-402.

★ **Raj Chetty (2006).** “A General Formula for the Optimal Level of Social Insurance.” *Journal of Public Economics*, 90: 1879-1901.

★ **Bruce Meyer (1990).** “Unemployment Insurance and Unemployment Spells,” *Econometrica* 58, 757-782.

★ **Jonathan Gruber (1997).** “The Consumption Smoothing Benefits of Unemployment Insurance,” *American Economic Review*, 87, 192-205.

Bruce Meyer (1995). “Lessons from the U.S. Unemployment Insurance Experiments,” *Journal of Economic Literature*, 33, 91-131.

[B.] Theory of Optimal Unemployment Insurance (Dynamic Models)

Dynamic theory of optimal timing and level of unemployment insurance started with Shavell and Weiss (1979). There is also a growing literature dubbed “dynamic public finance” that addresses the mechanism design issues related to unemployment insurance, as well as disability insurance, dynamic optimal taxation etc.

★ **Steven Shavell and Lawrence Weiss (1979)**. “The Optimal Payment of Unemployment Insurance Benefits over Time,” *Journal of Political Economy*, 87, 1347-1362.

★ **Hugo Hopenhayn and Juan Niccolini (1997)**. “Optimal Unemployment Insurance,” *Journal of Political Economy*, 105 (1997), 412–438.

★ **Cheng Wang and Stephen Williamson (1996)**. “Unemployment Insurance with Moral Hazard in a Dynamic Economy,” *Carnegie-Rochester Conference Series on Public Policy*, 44, 1-41, 1996.

Cheng Wang and Stephen Williamson (2002). “Moral Hazard, Optimal Unemployment Insurance, and Experience Rating.” *Journal of Monetary Economics* 49, 1337-1372, 2002.

★ **Michael Golosov, Aleh Tsyvinski and Ivan Werning (2006)**. “New Dynamic Public Finance: A User’s Guide.” *NBER Macroeconomics Annual 2006*.

Robert Shimer and Ivan Werning (2007). “Liquidity and Insurance for the Unemployed” MIT mimeo.

★ **Robert Shimer and Ivan Werning (2007)**. “Reservation Wages and Unemployment Insurance,” *Quarterly Journal of Economics*, 2007, 122 (3): 1145-1185.

★ **Robert Shimer and Ivan Werning (2007)**. “On the Optimal Timing of Benefits with Heterogeneous Workers and Human Capital Depreciation.” mimeo, MIT.

[C.] Empirical Evidence of Unemployment Insurance on Worker and Firm Behavior

★ **B. Meyer (1990)**. “Unemployment Insurance and Unemployment Spells,” *Econometrica* 58, 757-782.

B. Meyer (1995). “Lessons from the U.S. Unemployment Insurance Experiments,” *Journal of Economic Literature* 33, 91-131.

D. Blau and P. Robins (1990). “Job Search Outcomes for the Employed and Unemployed,” *Journal of Political Economy*, 98 (1990), 637-655.

★ **J. Gruber (1997)**. “The Consumption Smoothing Benefits of Unemployment Insurance,” *American Economic Review*, 87, 192-205.

M. Feldstein (1978). “The Effect of Unemployment Insurance on Temporary Layoff Unemployment,” *American Economic Review*, 65, 834-846.

★ **Robert Topel (1983).** “On Layoffs and Unemployment Insurance,” *American Economic Review* 73, 541-559.

[D.] **Some New Empirical Studies and Empirical Methods for Welfare Analysis**

Here we discuss a couple of new papers by Chetty. Chetty (2008) proposes using sufficient statistics, estimable using non-structural methods, to conduct welfare analysis.

★ **Raj Chetty (2008).** “Morale Hazard versus Liquidity and Optimal Unemployment Insurance.” *Journal of Political Economy*, Vol. 116, No. 2, 173-234.

★ **Raj Chetty (2008).** “Sufficient Statistics for Welfare Analysis: A Bridge Between Structural and Reduced-Form Methods”, Forthcoming, *Annual Review of Economics*.

Section 5: Disability Insurance

[A.] **Survey**

John Bound and Richard Burkhauser, “Economic Analysis of Transfer Programs Targeted on People with Disabilities”, *Handbook of Labor Economics* (Vol 3C), Chap 51, 1999.

[B.] **Theory of Optimal Disability Insurance**

P. Diamond and E. Sheshinski (1995). “Economic Aspects of Optimal Disability Benefits,” *Journal of Public Economics*, 57, 1-24.

★ **M. Golosov and A. Tsyvinski (2006).** “Designing Optimal Disability Insurance,” *Journal of Political Economy*, 114(2), 257-269

[C.] **Empirical Evidence of the Effect of Disability Insurance**

★ **D. Parsons (1980).** “The Decline of Male Labor Force Participation,” *Journal of Political Economy*, 88, 117-134.

★ **J. Bound (1989).** “The Health and Earnings of Rejected Disability Insurance Applicants,” *American Economic Review*, 79, 482-503.

★ **D. Parsons (1991).** “The Health and Earnings of Rejected Disability Insurance Applicants: Comment,” *American Economic Review*, 81, 1419-1426.

★ **J. Bound (1991).** “The Health and Earnings of Rejected Disability Insurance Applicants: Reply,” *American Economic Review*, 81, 1427-1434.

★ **J. Gruber (2000).** “Disability Insurance Benefits and Labor Supply,” *Journal of Political Economy*, 108, 1162-1183

Section 6: Social Security

[A.] Survey

M. Feldstein and J. Liebman, "Social Security," in A. Auerbach and M. Feldstein, *Handbook of Public Economics*.

Diamond, Peter A. "Social Security," *American Economic Review* 94 (1), March 2004: 1-24.

[B.] Theory

★ **P. Samuelson (1958)**. "An Exact Consumption Loan Model of Interest With or Without the Social Contrivance of Money," *Journal of Political Economy*.

★ **Crawford, V. and Lilien, D. (1981)**. "Social Security and the Retirement Decision." *Quarterly Journal of Economics*, No. 96, No. 3, 505-529.

★ **M. Feldstein (1985)**. "The Optimal Level of Social Security Benefits," *Quarterly Journal of Economics*. May 1985.

M. Feldstein (1987). "Should Social Security Be Means Tested?," *Journal of Political Economy*, 95, 468-484.

★ **R. G. Hubbard and K. Judd (1987)**. "Social Security and Individual Welfare: Precautionary Saving, Borrowing Constraints, and the Payroll Tax," *American Economic Review*, 630-646.

[C.] Consumption and Saving Effects: Empirical Evidence

★ **M. Feldstein (1974)**. "Social Security, Induced Retirement and Aggregate Capital Formation," *Journal of Political Economy*, vol. 82, no. 5, 905-926.

L. Kotlikoff (1979). "Testing the Theory of Social Security and Life Cycle Accumulation," *American Economic Review*, vol. 69, no. 3, 396-410.

★ **W. Gale (1998)**. "The Effects of Pensions on Household Wealth: A Re-Evaluation of Theory and Evidence," *Journal of Political Economy*, 106, 706-723.

J. Banks, R. Blundell, and S. Tanner, "Is There a Retirement Savings Puzzle?," *American Economic Review* 88 (1998), 769-788.

Dean R. Leimer and Selig D. Lesnoy, "Social Security and Private Saving: New Time Series Evidence," *Journal of Political Economy*, vol. 90, no. 3 (June 1982), pp. 606-629.

D. Hamermesh (1984). "Consumption During Retirement: The Missing Link in the Life-Cycle Hypothesis," *Review of Economics and Statistics*, 66, 1-7.

★ **M. Aguiar and E. Hurst**, "Consumption vs. Expenditure," *Journal of Political Economy* 113, 2005: 919-948.

★ **Laitner, John and Dan Silverman (2005)**. “Estimating Life-cycle Parameters from Consumption Behavior at Retirement.” mimeo, University of Michigan.

★ **Laitner, John and Dan Silverman (2008)**. “Consumption, Retirement and Social Security: Evaluating the Efficiency of Reform that Encourages Longer Careers.” mimeo, University of Michigan.

B. Madrian and D. Shea (2001). “The Power of Suggestion: Inertia in 401(k) Participation and Savings Behavior.” *Quarterly Journal of Economics* 116: 1149-1525.

[D.] Labor Supply Effects: Empirical Evidence

D. Costa (1995). “Pensions and Retirement: Evidence from Union Army Veterans,” *Quarterly Journal of Economics* 110, 297-319.

M. Hurd and M. Boskin (1984). "The Effects of Social Security on Retirement in the Early 1970s," *Quarterly Journal of Economics*, November.

★ **J. Rust and C. Phelan (1997)**. “How Social Security and Medicare Affect Retirement Behavior in a World of Incomplete Markets,” *Econometrica* 65, 781-832.

A. Samwick (1998). “The Joint Effect of Social Security and Pensions on the Timing of Retirement: Some New Evidence,” *Journal of Public Economics* 70, 207-236.

★ **French, Eric (2005)**. “The Effects of Health, Wealth, and Wages on Labor Supply and Retirement Behavior,” *Review of Economic Studies* 72,: 395-427.