

ECON 803.01
ADVANCED MACROECONOMIC THEORY
Topics on Consumption and Savings

Fall 2004
Syllabus

Professor: Marina Pavan
Room 469, Department of Economics
21 Campanella Way, 4th floor
Tel. 617-552-6026
E-mail: pavanma@bc.edu
URL: <http://www2.bc.edu/~pavanma/>

GENERAL INFORMATION

Office Hours: Room 469, Tuesday 2-4 p.m. or by appointment

Lecture times and Location: Tuesday and Thursday 10.30 – 11.50 a.m., McGuinn Hall 526.

Webpage: http://www2.bc.edu/~pavanma/teaching_graduate_econ803.01.htm

SUGGESTED TEXTBOOKS:

- Deaton A., *Understanding Consumption*, Clarendon Lectures in Economics, Oxford University Press, 1992 (below denoted with D)
- Adda J. and Cooper R., *Dynamic Economics – Quantitative Methods and Applications*, MIT Press, 2003 (below denoted with AC)
- Ljungqvist L. and Sargent T.J., *Recursive Macroeconomic Theory*, MIT Press, 2000 (below denoted with LS)

MOTIVATION

Consumption is the largest component of GDP (about two thirds in developed countries) and the most important determinant of welfare. Moreover, consumption decisions translate into saving decisions and from there into capital accumulation and investment. Therefore, ‘consumers’ attitudes to saving, risk bearing and uncertainty are crucial to understand the behavior of capital markets, the process of investment and growth and development.’ (Attanasio (1999))

COURSE OUTLINE AND OBJECTIVES

This course will cover optimizing models of inter-temporal consumption and saving behavior under various assumptions on capital markets structure, life horizon, income dynamics and uncertainty faced by households. We’ll analyze the basic analytical structure of these models along with some extensions, deriving their empirical implications and studying some policy applications.

The two main goals of the course are:

- 1) to expose you to the most relevant literature in this area, where the fields of macroeconomics, labor economics and empirical microeconomics overlap
- 2) to train you to write your own independent research.

In this course you'll learn how to specify dynamic consumption models and how to solve them (numerically, if required). You'll be able to derive testable implications of the model and implement them econometrically using the appropriate data sources. An introduction to the procedures needed to take a completely structural approach and estimate the parameters of your model to do policy experiments will also be given. Ideally, the students wishing to apply the techniques acquired in this class to start their own research agenda in this field should come up with open research questions during the course.

BRIEF OVERVIEW OF TOPICS:

- 1) **Stylized Facts and Empirical Puzzles on Consumption and Saving**
- 2) **Two Standard Benchmark Models:**
 - a. **Complete Markets (in the spirit of Arrow and Debreu) – Perfect Risk Sharing**
 - b. **Permanent Income – Life Cycle Model (PILCH) – Certainty Equivalence**
- 3) **Partial Equilibrium Extensions of PILCH Models:**
 - a. **Precautionary Savings**
 - b. **Liquidity Constraints**
 - c. **Structural Estimation of Life Cycle Models with Precautionary Saving and/or Liquidity Constraints**
- 4) **General Equilibrium Extensions of PILCH Models:**
 - a. **Models without Aggregate Uncertainty**
 - b. **Models with Aggregate Uncertainty**
- 5) **Complete Markets Models with Economic Frictions:**
 - a. **Models with Limited Enforceability**
 - b. **Models with Private Information**

COURSE REQUIREMENTS:

The following requirements must be met in order to obtain a grade for this course:

- a) Write a referee report on one of the papers of the reading list (excluding the ones marked with a *). The report will count for 30% of your grade. The report is due by December 15th.

The referee report should be composed of:

- 1) a short (less than one-page in type-writing) verbal description of the motivation and goal of the paper, the methods for achieving the goal, and the results
- 2) a critical evaluation. The evaluation should, in short, contain your views of the paper: whether (and why or why not) the motivation is good, whether (and why or why not) the methods are sound (and the results correct), and whether (and why or why not) the results are important.

- b) Complete the homework assignments that will be handed out in class. The homework assignments will count for 40% of the grade. You're encouraged to work in groups if you like, but each person must submit individual answers.
- c) Present in class a paper from the reading list (a different paper than in point a) above, and chosen from those papers marked with a +). A written summary of the paper (2 pages maximum) has to be provided at the time of the presentation. The presentation and paper summary will count for 30% of the grade.

TENTATIVE LIST OF TOPICS AND RELATED READINGS:

Note: The following list of topics is fairly ambitious and therefore subject to change, as time goes by and as we find together the right pace for the course. The papers marked with a * are those I will cover more thoroughly in class, those marked with a + are those that can be chosen for students' presentations .

1. Introduction: stylized facts and some puzzles

- * Attanasio O., "Consumption", in *Handbook of Macroeconomics*, Volume I B, Taylor J.B. and Woodford M. eds., North Holland Amsterdam, 1999, Ch. 11
- * Browning M. and Crossley T.F. (2001), "The life-cycle model of Consumption and Saving", *The Journal of Economic Perspectives*, vol. 15, no. 3, pp. 3-22
- * Browning M. and Lusardi A. (1996), "Household Saving: Micro Theories and Micro Facts", *Journal of Economic Literature*, vol. 34, pp. 1797-1855
- * Krueger D. and Fernandez-Villaverde J. (2002), "Consumption over the Life Cycle: Some Facts from Consumer Expenditure Survey Data", Working Paper downloadable at <http://www.econ.upenn.edu/~jesusfv/empiricalpaper.pdf>

2. Complete markets and perfect risk-sharing :

- **Theory:**
 - * D Ch. 1.3
 - * LS Ch. 7
- **Empirical implications:**
 - * Mace B. (1991), "Full Insurance in the Presence of Aggregate Uncertainty", *Journal of Political Economy*, vol. 99, pp. 928-956
 - * Nelson J.A. (1994), "On Testing for Full Insurance using Consumer Expenditure Survey Data", *The Journal of Political Economy*, vol. 102 (2), pp. 384-394

- Cochrane J. (1991), “A Simple Test of Consumption Insurance”, *Journal of Political Economy*, vol. 99, pp.957-976
- + Townsend (1994), “Risk and Insurance in Village India”, *Econometrica*, vol. 62, pp. 539-591
- + Udry C. (1994), “Risk and Insurance in a Rural Credit Market: an Empirical Investigation in Northern Nigeria”, *Review of Economic Studies*, vol. 61, pp. 495-526
- Attanasio O. and Davis S.J. (1996), “Relative wage movements and the distribution of consumption”, *Journal of Political Economy*, vol. 104, pp. 1227-1262
- Attanasio O. and Weber G. (1995), “Is Consumption Growth Consistent with Inter-temporal Optimization? Evidence from the Consumer Expenditure Survey”, *The Journal of Political Economy*, vol. 103 (6), pp. 1121-1157
- + Hayashi F., Altonji J. and Kotlikoff L. (1996), “Risk-Sharing Between and Within Families”, *Econometrica*, vol. 64, pp. 261-294

3. The Permanent Income Life Cycle Model (PILCH):

- **Theory:**

- * D Ch. 3
- * AC Ch. 6

- **Empirical implications:**

- * Hall R. (1978), “Stochastic Implications of the Life-Cycle Permanent Income Hypothesis: Theory and Evidence”, *Journal of Political Economy*, vol. 86, pp. 971-987
- Flavin M. (1981), “The Adjustment of Consumption to Changing Expectations about Future Income”, *Journal of Political Economy*, vol. 89, pp. 974-1009
- Hansen L. and Singleton K. (1983), “Consumption, Risk Aversion and the Temporal Behavior of Stock Market Returns”, *Journal of Political Economy*, vol. 91, pp. 249-265
- Campbell J. and Mankiw G. (1989), “Consumption, Income, and Interest Rates: Reinterpreting the Time Series Evidence”, in *NBER Macroeconomics Annual*, The MIT Press
- Blundell R., Browning M. and Meghir C. (1994), “Consumer Demand and the Life-Cycle Allocation of Household expenditures”, *Review of Economic Studies*, vol. 61, pp. 57-80
- Shea J. (1995), “Union Contracts and the Life-Cycle Permanent Income Hypothesis”, *American Economic Review*, vol. 85, pp.186-200
- + Pistaferri L. (1998), “Superior Information, Income Shock and the Permanent Income Hypothesis”, London: *University College London Discussion Papers* 98-4 (<http://www.stanford.edu/~pista/papers.html>)

4. Partial Equilibrium extensions of PILCH models:

- **Precautionary savings:**

- * D Ch. 6.1
- * Barsky R.B., Mankiw N.G. and Zeldes S.P. (1986), “Ricardian Consumers with Keynesian Propensities”, *American Economic Review*, vol. 76, pp. 676-691
- * Kimball M. (1990), “Precautionary Saving in the Small and in the Large”, *Econometrica*, vol. 58, pp. 53-73
- * Zeldes S. (1989 a), “Optimal Consumption with Stochastic Income: Deviations from Certainty Equivalence”, *Quarterly Journal of Economics*, vol. 104, pp. 275-298
- Caballero R. (1990), “Consumption Puzzles and Precautionary Savings”, *Journal of Monetary Economics*, vol. 25, pp. 113-136
- Carroll C., Hall R.E. and Zeldes S.P. (1992), “The Buffer-Stock Theory of Saving: Some Macroeconomic Evidence”, *Brookings Papers on Economic Activity*, vol. 2, pp. 61-156
- + Hubbard G., Skinner J. and Zeldes S. (1995), “Precautionary Saving and Social Insurance”, *Journal of Political Economy*, vol. 103, pp. 360-399
- + Carroll C. (1997), “Buffer-Stock Saving and the Life-Cycle/Permanent Income Hypothesis”, *Quarterly Journal of Economics*, 112, pp. 1-55
- Carroll C.D. and Samwick A.A. (1998), “How Important is Precautionary Saving? “, *Review of Economics and Statistics*, vol. 80 (3), pp. 410-419
- Attanasio O., Banks J., Meghir C. and Weber G. (1999), “Humps and Bumps in Lifetime Consumption”, *Journal of Business and Economic Statistics*, vol. 17(1), pp.22-35
- Ludvigsson S. and Michaelides A. (2001), “Does Buffer-Stock Saving Explain the Smoothness and excess Sensitivity of Consumption?”, *American Economic Review*, vol. 91 (3), pp. 631-647

Note: at this point of the class we take a technical digression and learn how to solve numerically a model with precautionary saving (AC Ch.3).

- **Liquidity constraints:**

- * D Ch. 6.2
- * Zeldes S. (1989 b), “Consumption and Liquidity Constraints: an Empirical Investigation”, *Journal of Political Economy*, vol. 97, pp. 305-346
- * Deaton A. (1991), “Saving and Liquidity Constraints”, *Econometrica*, vol. 59, pp. 1221-1248
- + Meghir C. and Weber G. (1996), “Intertemporal Non-Separability or Borrowing Restrictions? A Disaggregate Analysis Using a US Consumption Panel”, *Econometrica*, vol. 64, pp. 1151-1182

- + Adda J. and Eaton J. (1997), “Borrowing with Unobserved Liquidity Constraints: Structural estimation with an Application to Sovereign Debt”, *mimeo, Boston University*
- Ludvigsson S. (1999), “Consumption and Credit: a Model of Time-Varying Liquidity Constraints”, *The Review of Economics and Statistics*, vol. 81 (3), pp. 434-447
- Gross and Souleles N. (2001), “Do Liquidity Constraints and Interest Rates Matter for Consumer Behavior? Evidence from Credit Card Data”, *NBER Working Paper* no. 8314
- **Combining prudence and liquidity constraints:**
 - * Schechtman J. (1976), “An Income Fluctuation Problem”, *Journal of Economic Theory*, vol. 12, pp. 218-241
 - * Schechtman J. and Escudero V. (1977), “Some results on “An Income Fluctuation Problem””, *Journal of Economic Theory*, vol. 16, pp. 151-166
 - * Chamberlain G. and Wilson C. (2000), “Optimal Intertemporal Consumption under Uncertainty”, *Review of Economic Dynamics*, pp. 365-395
 - Fernandez-Villaverde J. and Krueger D. (2001), “Consumption and Saving over the Life-Cycle: How Important are Consumer Durables?”, *Working Paper, University of Pennsylvania*
- **Structural Estimation of Life Cycle Models with Precautionary Saving and/or Liquidity Constraints:**
 - * AC Ch. 4
 - * Gourinchas P.O. and Parker J. (2002), “Consumption over the Life-Cycle”, *Econometrica*, vol. 70 (1), pp. 47-89
 - Pavan M. (2003), “Risky Borrowing and Durable Consumption: the Effects of bankruptcy Protection”, *Boston College Working Paper* 573

5. PILCH models in general equilibrium:

- **Models without aggregate uncertainty:**
 - * LS Ch. 14
 - * Huggett M. (1993), “The Risk-Free Rate in Heterogeneous Agent Incomplete Insurance Economies”, *Journal of Economic Dynamics and Control*, vol. 17, pp. 953-969
 - * Aiyagari R. (1994), “Uninsured Risk and Aggregate Saving”, *Quarterly Journal of Economics*, vol. 109, pp. 659-684
 - + Huggett M. and Ospina S. (2003?), “On Aggregate Precautionary Saving: When is the Third Derivative Irrelevant? ”, *Journal of Monetary Economics*, forthcoming
 - * Rios-Rull V. (1999), “Computation of Equilibria in Heterogeneous-Agent Models”, in *Computational Methods for the Study of Dynamic Economies*, Marimon R. and Scott A. eds., Oxford University Press, Ch. III-11

- **Models with Aggregate Uncertainty:**

- * Krusell P. and Smith T. (1998), "Income and Wealth Heterogeneity in the Macroeconomy", *Journal of Political Economy*, vol. 106 (5), pp. 867-896

6. Quantitative Policy Analysis:

- * Aiyagari R. and McGrattan E. (1998), "The Optimum Quantity of Debt", *Journal of Monetary Economics*, vol. 42, pp. 447-469
- + Aiyagari R. (1995), "Optimal Capital Income Taxation with Incomplete Markets, Borrowing Constraints, and Constant Discounting", *Journal of Political Economy*, vol. 103, pp. 1158-1175
- + Huggett M. and Ventura (1999), "On the Distributional Effects of Social Security Reform", *Review of Economic Dynamics*, vol. 2, pp. 498-531
- + Heathcote J. (1999), "Fiscal Policy with Heterogeneous Agents and Incomplete Markets", *Working Paper*
- + Conesa J. and Krueger D. (1999), "Social Security Reform with Heterogeneous Agents", *Review of Economic Dynamics*, vol. 2, pp. 757-795
- + Rust J. and Phelan C. (1997), "How Social Security and Medicare Affect Retirement Behavior in a World of Incomplete Markets", *Econometrica*, vol. 65(4), pp. 781-832
- + Floden M. (2001), "The Effectiveness of Government Debt and Transfers as Insurance", *Journal of Monetary Economics*, vol. 48 (1), pp.81-108
- + Floden M. and Linde J. (2001), "Idiosyncratic Risk in the U.S. and Sweden: is there a role for Government Insurance? ", *Review of Economic Dynamics*, vol. 4(2), pp. 406-437
- + Gali` J, Lopez-Salido J.D. and Valles J. (2003), "Understanding the Effects of Government Spending on Consumption", *Working Paper*
- + Krueger D. and Kubler F. (2003), "Pareto Improving Social Security Reform when Financial Markets are Incomplete!?", *Working Paper* downloadable at <http://www.econ.upenn.edu/~dkrueger/socsecagg.pdf>

7. Complete markets with frictions:

- **Limited Enforcement:**

- * LS Ch. 15
- * Kocherlakota N. (1996), "Implications of Efficient Risk-Sharing without Commitment", *Review of Economic Studies*, vol. 63, pp. 595-609
- * Kehoe T. and Levine D. (2001), "Liquidity Constrained Markets versus Debt Constrained Markets", *Econometrica*, vol. 69, pp. 575-598
- Alvarez F. and Jermann U.J. (2000), "Efficiency, Equilibrium, and Asset Pricing with Risk of Default", *Econometrica*, vol. 68, pp. 775-797

- Ligon E., Thomas J.P. and Worrall T. (2000), “Mutual Insurance, Individual Savings and Limited Commitment”, *Review of Economic Dynamics*, vol. 3, pp. 216-246
 - + Attanasio O. and Rios-Rull V. (2000), “Consumption Smoothing in Island Economies: Can Public Insurance Reduce Welfare?“, *European Economic Review*, vol. 44, pp. 1225-1258
 - + Ligon E., Thomas J.P. and Worrall T. (2002), “Informal Insurance Arrangements with Limited Commitment: Theory and Evidence from Village Economies”, *Review of Economic Studies*, vol. 69, pp.209-244
 - + Krueger D. and Perri F. (2001), “Risk Sharing, Private Insurance Markets or Redistributive Taxes? ”, Working Paper downloadable at <http://www.econ.upenn.edu/~dkrueger/risktax.pdf>
 - + Krueger D. and Perri F. (2003), “Does Income Inequality lead to Consumption Inequality? Evidence and Theory”, Working Paper, downloadable at <http://www.econ.upenn.edu/~dkrueger/vii1003.pdf>
- **Private Information:**
- * Green E. (1987), “Lending and the Smoothing of Uninsurable Income” in *Contractual Arrangements for Intertemporal Trade*, Prescott E. and Wallace N. eds., University of Minnesota Press, pp.3-25
 - * Atkenson A. and Lucas R. (1992), “On Efficient Distribution with Private Information”, *Review of Economic Studies*, vol. 59, pp. 427-453
 - Atkenson A. and Lucas R. (1995), “ Efficiency and Equality in a Simple Model of Efficient Unemployment Insurance”, *Journal of Economic Theory*, vol. 66, pp. 64-88
 - Ligon (1998), “Risk-Sharing and Information: Theory and Measurement in Village Economies”, *Review of Economic Studies*, vol. 65, pp. 847-864
 - Abraham A. and Pavoni N. (2004), “Efficient Allocations with Moral Hazard and Hidden Borrowing and Lending”, Working Paper downloadable at <http://www.ucl.ac.uk/%7Euctpnpa/abpav.pdf>