

Advanced Topics: Inaction in macroeconomics *

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The class we will use continuous time stochastic processes and optimal control methods to study models of inaction, such as infrequent portfolio adjustment by households or infrequent price adjustment by firms. Emphasis will be placed on the solution methods, mostly analytical, and on quantitative applications. The main area of application concerns price stickiness, i.e. the problem of a firm facing a fixed cost of adjusting prices. We will solve the firm decision problem under different frictions, discuss aggregation of the individual firm decisions within a GE model, and study the propagation of shocks in an economy populated by “inactive” firms.

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1. Continuous time diffusions, controlled BM and Hamilton-Jacobi-Bellman equations

- Chapters 1-4 from [Dixit \(1993\)](#) and Chapters 3 (1, 2 optional) [Stokey \(2009\)](#)
- Discrete time - discrete state derivation of BM
- Derivation of the Hamilton-Jacobi-Bellman equation
- Controlled BM: expected time to hit barrier
- Invariant distribution of a controlled diffusion: Kolmogorov equation
- The smooth pasting principle

2. Applications I : money demand models (PE)

- deterministic expenditures and free adjustments: [Alvarez and Lippi \(2009\)](#)
- stochastic expenditures: [Miller and Orr \(1966\)](#)
- structural estimation of money demand models
- misc: model with jumps (lumpy purchases), cash credit

3. Applications II : price setting with menu cost (PE & GE)

- Classics: sS without aggregate shocks, [Dixit \(1991\)](#) [Sheshinski and Weiss \(1977\)](#), [Benabou and Konieczny \(1994\)](#)
- The empirical evidence and the menu cost problem
- The microeconomic foundations of the firm's problem: [Alvarez and Lippi \(2012\)](#)
- Analytics of decision rules and aggregation: [Alvarez and Lippi \(2012\)](#)

4. Applications III: price setting with observation cost

- Classics [Caballero \(1989\)](#), [Reis \(2006\)](#)
- Extensions: random observation costs [Alvarez, Lippi, and Paciello \(2012\)](#)
- Problem with menu cost *and* observation costs [Alvarez, Lippi, and Paciello \(2011\)](#).

□ More reading and applications

- Money Neutrality (aggregate shock only): “elevator coming up” aggregation [Caplin and Spulber \(1987\)](#)
- Phillips Curve: “elevator in a shaft”: [Caplin and Leahy \(1991, 1997\)](#) also Chap 12 [Stokey \(2009\)](#)
- Phillips Curve with constant prob. changes price: [Danziger \(1999\)](#)
- Quantitative Examples: [Golosov and Lucas \(2007\)](#), [Midrigan \(2009\)](#).

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