Economics 701: Macroeconomics II

Spring 2009

Lecture 2: The Keynesian View, Rational Expectations and Policy (In)effectiveness

University at Albany

State University of New York

John Bailey Jones

January, 2009

1. IS-LM and AD-AS models

   (a) IS-LM vs. classical/neoclassical approaches

   - Differences in methodology and in beliefs
   - Classical/Neoclassical approach
     - Economy-level relationships aggregated from individual behavior.
     - Specify preferences, technologies and markets
     - Utility and profit maximization
     - Classical: largely static.
     - Neoclassical: dynamic framework with expectations carefully modelled.
     - General belief in rational behavior and efficient markets $\Rightarrow$ little room for fiscal or monetary policy

1. (a) IS-LM vs. classical/neoclassical approaches

- IS-LM/AD-AS approaches
  - Begin with economy-level relationships: simpler, richer and less rigorous
  - Informal microeconomic justifications
  - Static with informal modelling of expectations
  - General belief in less-than-rational behavior and inefficient markets $\Rightarrow$ more room for policy
- Neo-Keynesian: Neoclassical modelling methodology combined with market imperfections

1. (b) Classical quantity theory (Fisher, 1911)

- Equation of exchange

$$\begin{aligned} PY &= MV, \\ P &= \text{price level}, \\ Y &= \text{real output}, \\ M &= \text{nominal money supply}, \\ V &= \text{velocity}. \end{aligned}$$

- V fixed over short-run $\Rightarrow$ nominal output proportional to money supply

1. (b) Classical quantity theory (continued)

- Market clearing and monetary neutrality
  - Nominal prices move rapidly so that Y stays at classical optimum

$$P = \frac{MV}{Y} \Rightarrow \frac{P_{t+1}}{P_t} = \frac{M_{t+1}}{M_t}$$

  - Monetary neutrality: money affects nominal prices, but not real (relative) prices or quantities. "*Money is a veil.*"

1. (c) IS-LM model (Keynes and Hicks)

- Determines output and interest rates
- IS (*Investment* = *Savings*) curve
  - Output-interest rate combinations where planned expenditures = income.
  - Planned expenditures:

$$
\begin{aligned}
E &= E\left(Y, i-\pi^{e}, G, T\right), \\
Y &= \text{current income = output,} \\
i-\pi^{e} &= \text{real interest rate,} \\
G &= \text{government purchases (}\textit{not transfers}\text{),} \\
T &= \text{taxes,}
\end{aligned}
$$

1. (c) IS-LM model (continued)

- IS (*Investment = Savings*) curve
  - Planned expenditures:

$$\begin{aligned} E &= E\left(Y, i-\pi^e, G, T\right), \\ E_Y \equiv \frac{\partial E}{\partial Y} &\in (0,1), \\ E_{i-\pi^e} &< 0, \\ E_G &> 0, \\ E_T &< 0. \end{aligned}$$

  - Equilibrium: output = planned expenditures

$$Y = E = E\left(Y, i-\pi^e, G, T\right)$$

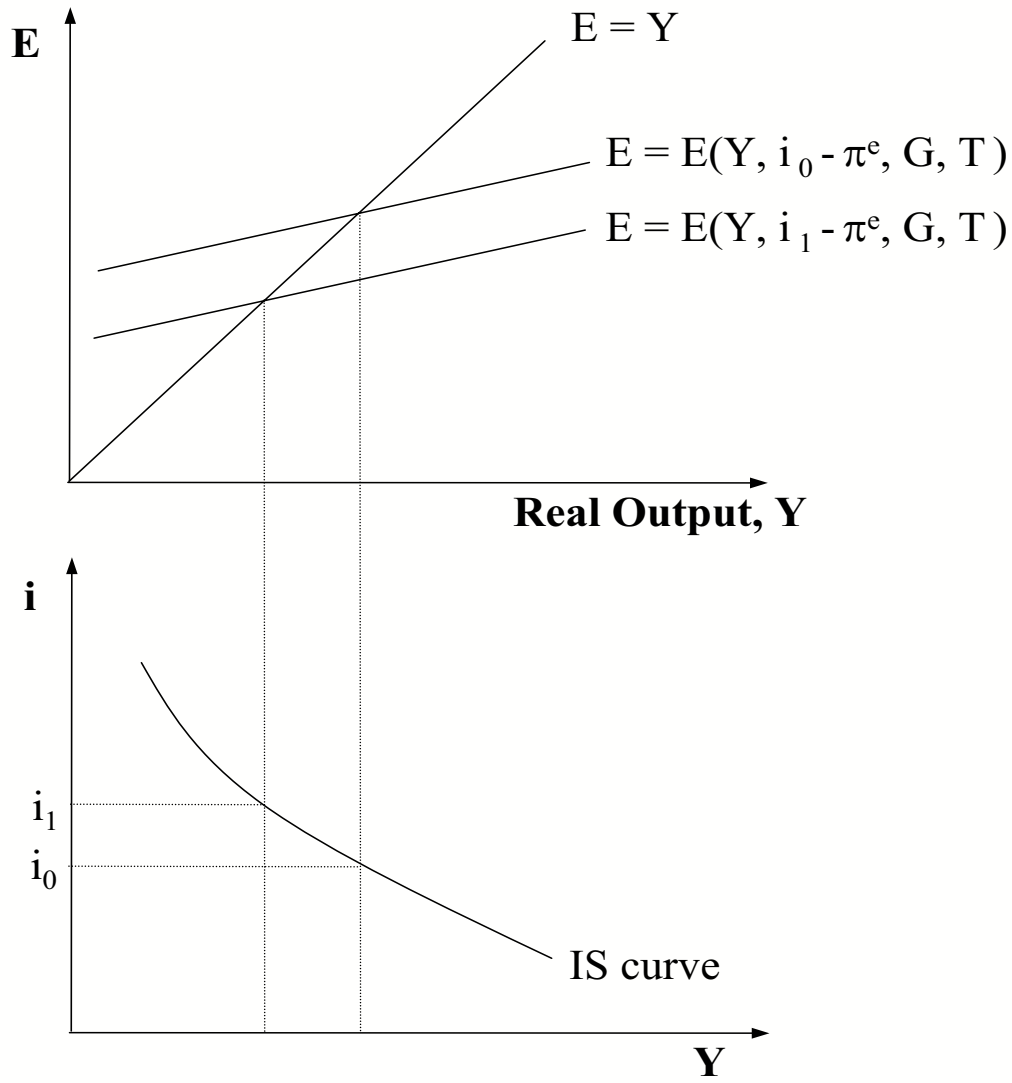
1. (c) IS-LM model (continued)

- IS (*Investment = Savings*) curve
  - IS curve slopes down:

$$\left.\frac{\partial Y}{\partial i}\right|_{IS} = \frac{E_{i-\pi^e}}{1 - E_Y} < 0.$$

  - Informal HW: Show that anything that increases E, holding i and Y fixed, shifts the IS curve to the right.

1. (c) IS curve slopes down



1. (c) IS-LM model (continued)

- LM (*Liquidity Demand = Money Supply*) curve
  - Output-interest rate combinations where the market for real balances is in equilibrium.
  - Demand for real balances:

$$\begin{aligned} \frac{M^d}{P} &= L(i, Y), \\ \frac{M}{P} &= \text{real balances}, \\ L_i &< 0, \\ L_Y &> 0, \end{aligned}$$

  - Take real money supply M^S/P as given.

1. (c) IS-LM model (continued)

- LM (*Liquidity Demand = Money Supply*) curve
  - Equilibrium:

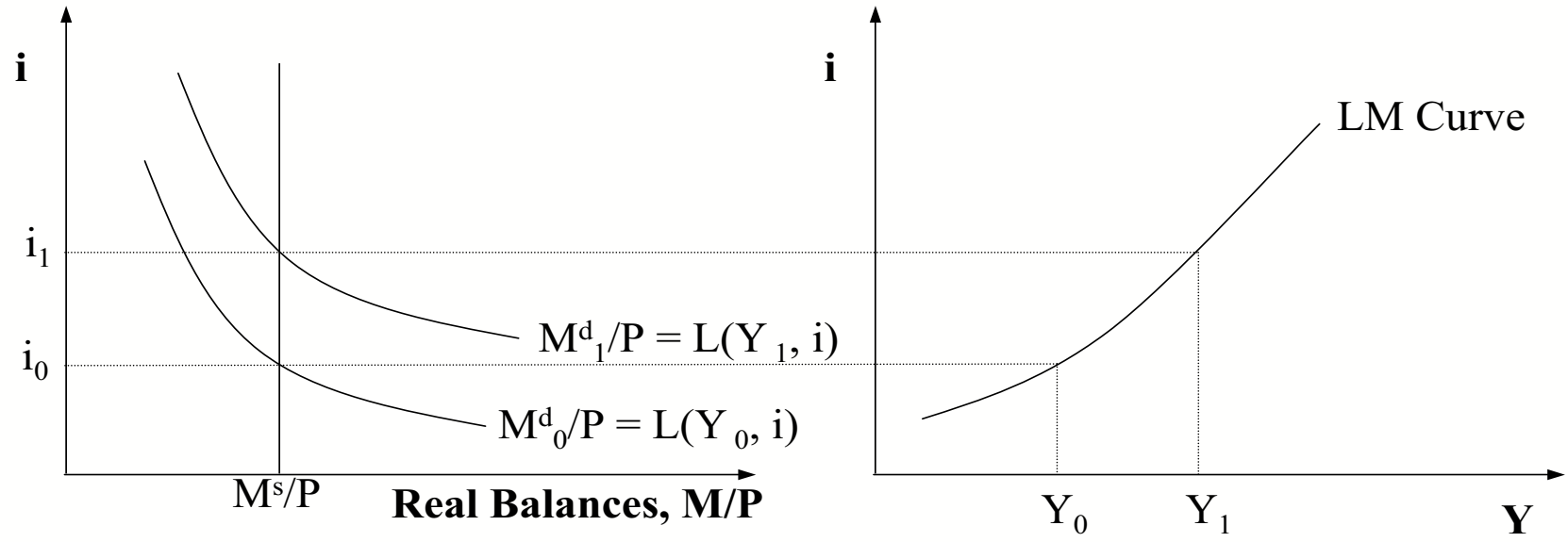
$$\frac{M^S}{P} = L\left(i, Y\right).$$

  - LM curve slopes up

$$\left.\frac{\partial i}{\partial Y}\right|_{LM} = -\frac{L_Y}{L_i} > 0.$$

  - Informal HW: Show that increasing the nominal supply of money shifts the LM curve to the right, and that increasing the price level shifts the LM curve to the left.

1. (c) LM curve slopes up:



1. IS-LM and AD-AS models (continued)

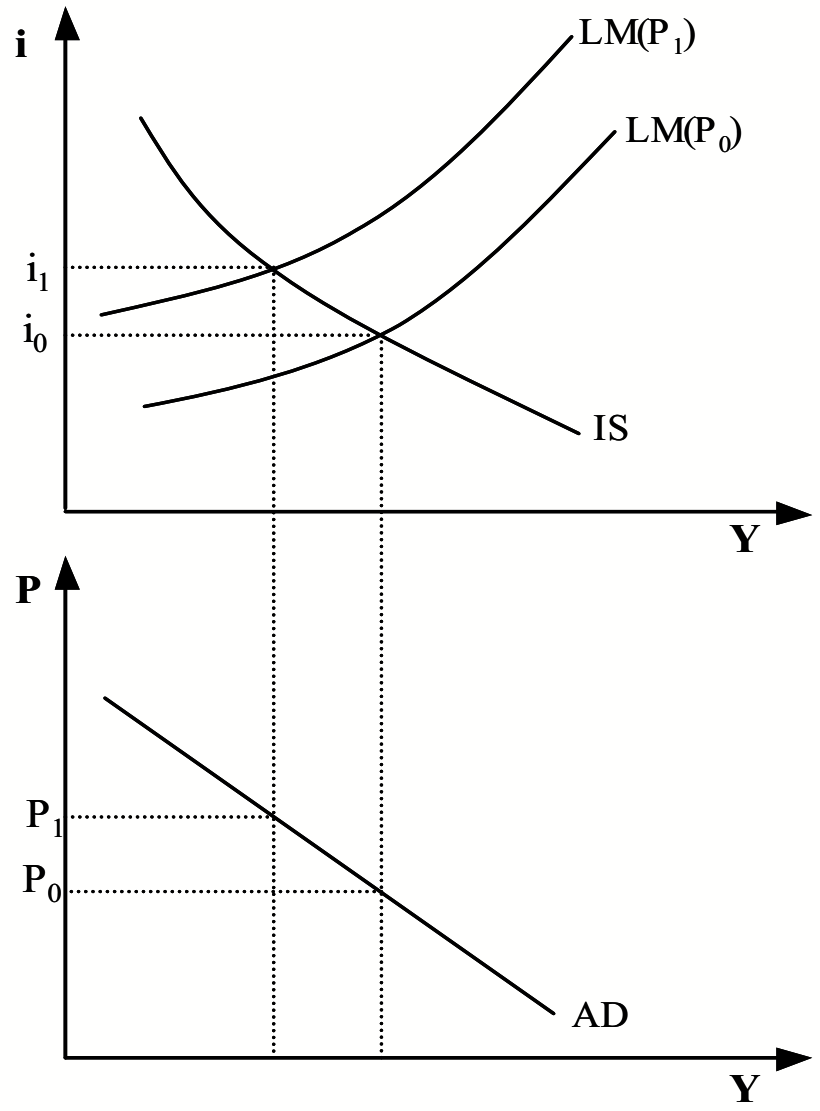
   (c) IS-LM model (continued)

   - Equilibrium: intersection of IS and LM curves

   (d) Aggregate Demand (AD) Curve

   - IS-LM equilibria at different values of P
   - AD curve slopes down.
   - Informal HW: show that anything that shifts the IS or LM curve to the right (except P) shifts the AD curve to the right.

1. (d) AD curve slopes down:



1. IS-LM and AD-AS models (continued)

   (e) Short-run aggregate supply (SRAS) curve

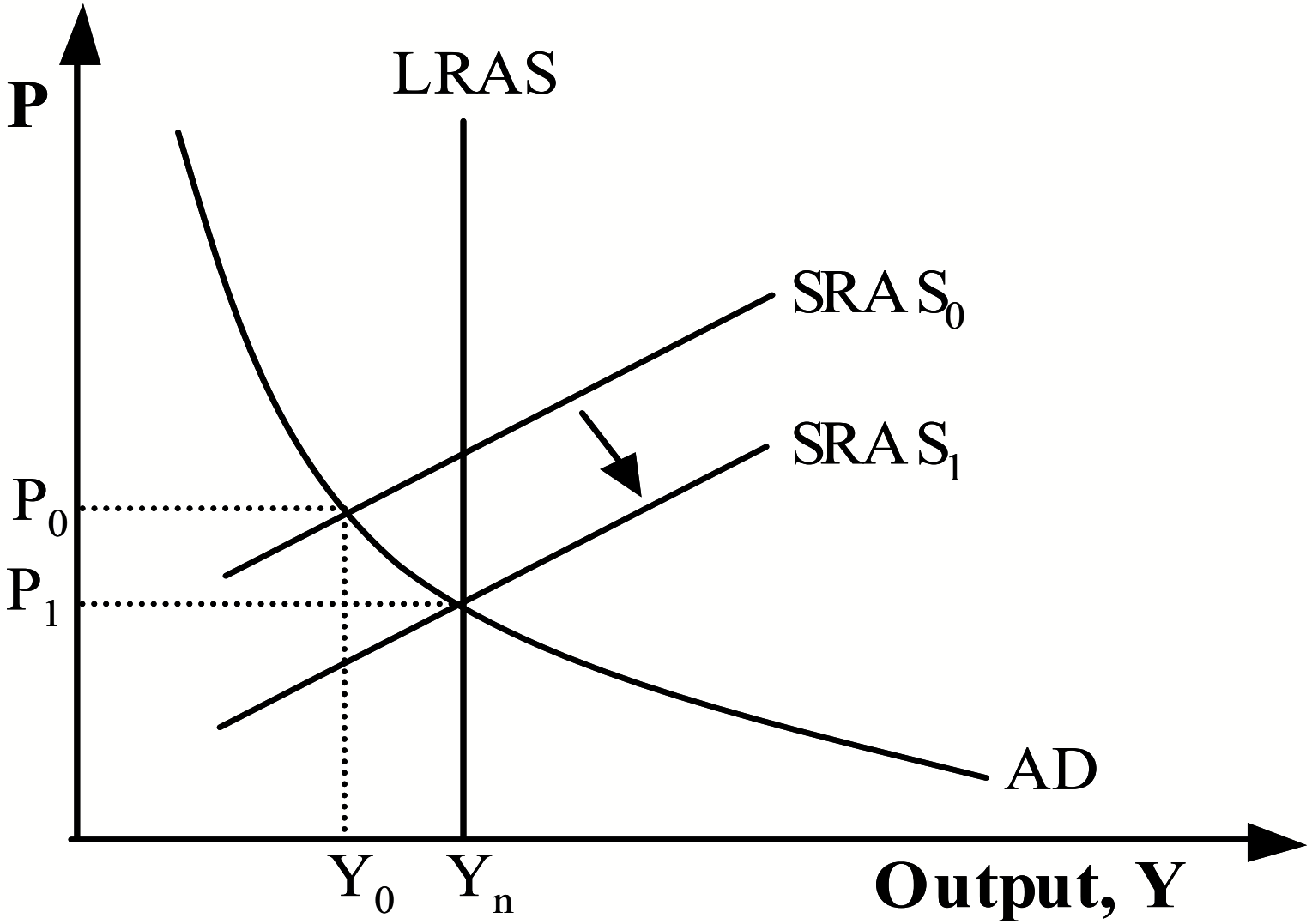
   - Production function evaluated at equilibrium labor.
   - Production function:
     - $Y = F(L^*)$, $F_L > 0$. (Capital stock usually ignored.)
   - Equilibrium labor: Romer Case 1.
     - Nominal wage W fixed.
     - Workers supply whatever labor firms demand.
     - L^* set so that $F_L(L^*) = \frac{W}{P}$ = real wage.
   - SRAS curve slopes up: $P \uparrow \Rightarrow \frac{W}{P} \downarrow \Rightarrow L^* \uparrow \Rightarrow Y \uparrow$.
   - SRAS shifted by changes in W, technology, or non-labor input prices

1. IS-LM and AD-AS models (continued)

   (f) Long-run aggregate supply curve (LRAS)

   - Nominal input prices flexible in long run
   - LRAS vertical at Y_n = full-employment output
   - Self-correcting mechanism: nominal wage adjusts to bring real wage back to full-employment (market-clearing) level.
   - Short-run: intersection of SRAS and AD curves
   - Long-run: Intersection of LRAS and AD curves: SRAS curve adjusts
   - LRAS shifted by long-term shifts in technology or willingness to work

1. (f) Self-correcting mechanism



1. IS-LM and AD-AS models (continued)

   (g) Many sources of economic fluctuations

   - Money is neutral in the long-run, but not in the short-run.
   - Example: “Animal Spirits” make investors more willing to spend

   (h) Issue: speed of self-correcting mechanism

   - Depends on how nominal wages are set.
   - Wage-setting depends on worker’s beliefs about future.

1. (g) Example: “Animal Spirits” make investors more willing to spend