Should monetary and fiscal policy pull in the same direction?

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Introduction & Motivation

- How could fiscal policy best support monetary policy in achieving its goals?
  i.e. keep inflation stable around the target and keep output/employment stable around its maximum sustainable level

To rephrase:

- What is the optimal policy mix in response to various types of shocks?
  (Will focus on inflation shock in the presentation)

Introduction & Motivation

- **Mundell (1962)**: Policy instruments should be assigned to the macroeconomic goals they could achieve most efficiently.
- **First Line of Defense**: After introducing inflation targeting, monetary policy was widely viewed as the primary tool for managing business cycles.
- **Shifting Perspectives**: The 2007-2008 financial crisis revealed monetary policy limits due to the lower bound on interest rates. The 2020-2021 pandemic further demonstrated the necessity of targeted fiscal policy.
- **Current Focus**: Policymakers have now shifted their focus from asking which instrument leads, to asking how monetary and fiscal policies should interact.

Challenging the Traditional Consensus

- **The Standard View:** It is widely believed by government officials and academics that fiscal and monetary policy should "not work against each other" and should pull in the same direction.

Challenging the Traditional Consensus

- Some examples from the IMF:
  - "Fiscal policy can and should support monetary policy in bringing inflation back to target in a timely manner."
  - "A tighter fiscal policy - while providing targeted support to the most vulnerable- should complement efforts by the monetary authorities to bring inflation back to target, making it possible for central banks to increase interest rates by less than otherwise."
- **We challenge the consensus** by showing that it is often optimal for monetary and fiscal policies to pull in opposite (divergent) directions.

The Core Mechanism

- **Different Impacts:** In a small open economy, monetary and fiscal policies impact inflation differently.
- **Fiscal Policy:** Influences inflation purely (or mostly) through the aggregate demand channel.
- **Monetary Policy:** Influences inflation through the demand channel, but also directly through the exchange rate channel.
- **Comparative Advantages:** As a result, monetary policy has a comparative advantage in stabilizing inflation, while fiscal policy has a comparative advantage in stabilizing output.

The Argument

- **Aggregate Demand**: The demand for domestically produced goods (measured as the output gap y):

$$y = -\alpha_r r + \alpha_g g \tag{1}$$

  where r is the real interest rate and g government spending.

- **Inflation equation:**

$$\pi = -\beta_r r + \beta_g g + u \tag{2}$$

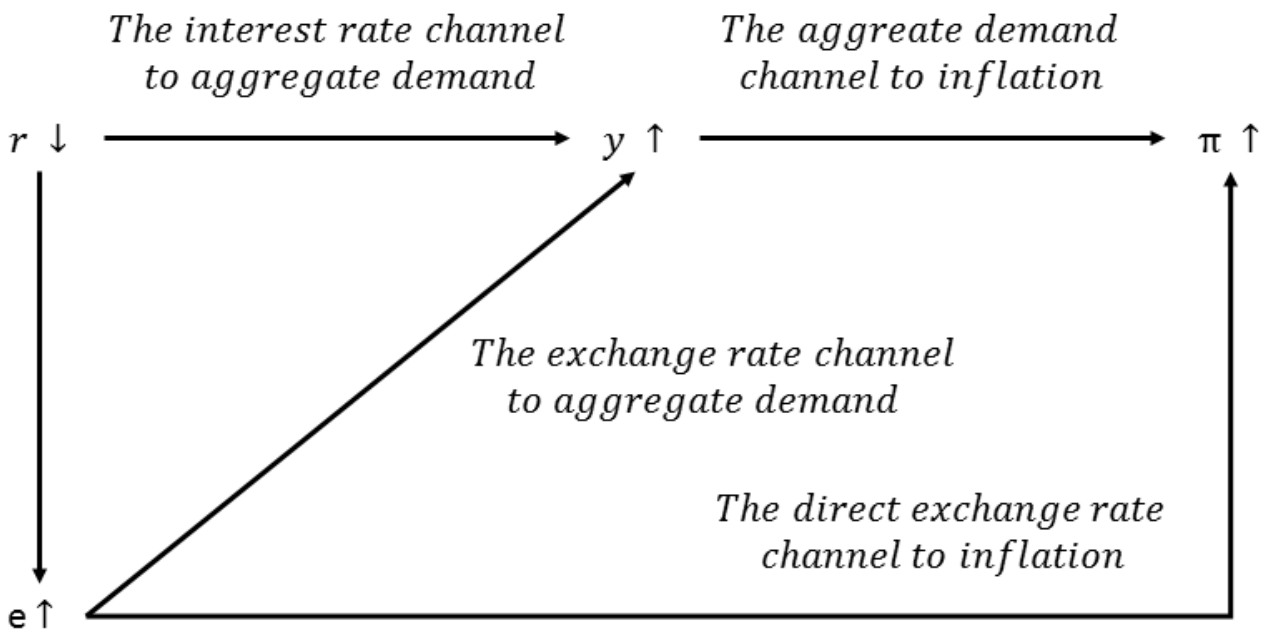
  Inflation is π and u is an exogenous inflation shock (e.g., energy prices or mark-ups).

- **Monetary policy** has a comparative advantage in stabilizing inflation relative to fiscal policy:

$$\frac{\beta_r}{\alpha_r} > \frac{\beta_g}{\alpha_g} \tag{3}$$

The Monetary Policy Transmission Mechanism

A reduction in the key policy rate



Monetary and fiscal policy

- Since there are two (independent) instruments, the two targets $y = 0$ and $\pi = 0$ can be achieved. Setting $y = 0$ and $\pi = 0$ and solving for r and g gives

$$r = \frac{\alpha_g}{\beta_r \alpha_g - \alpha_r \beta_g} u \tag{4}$$

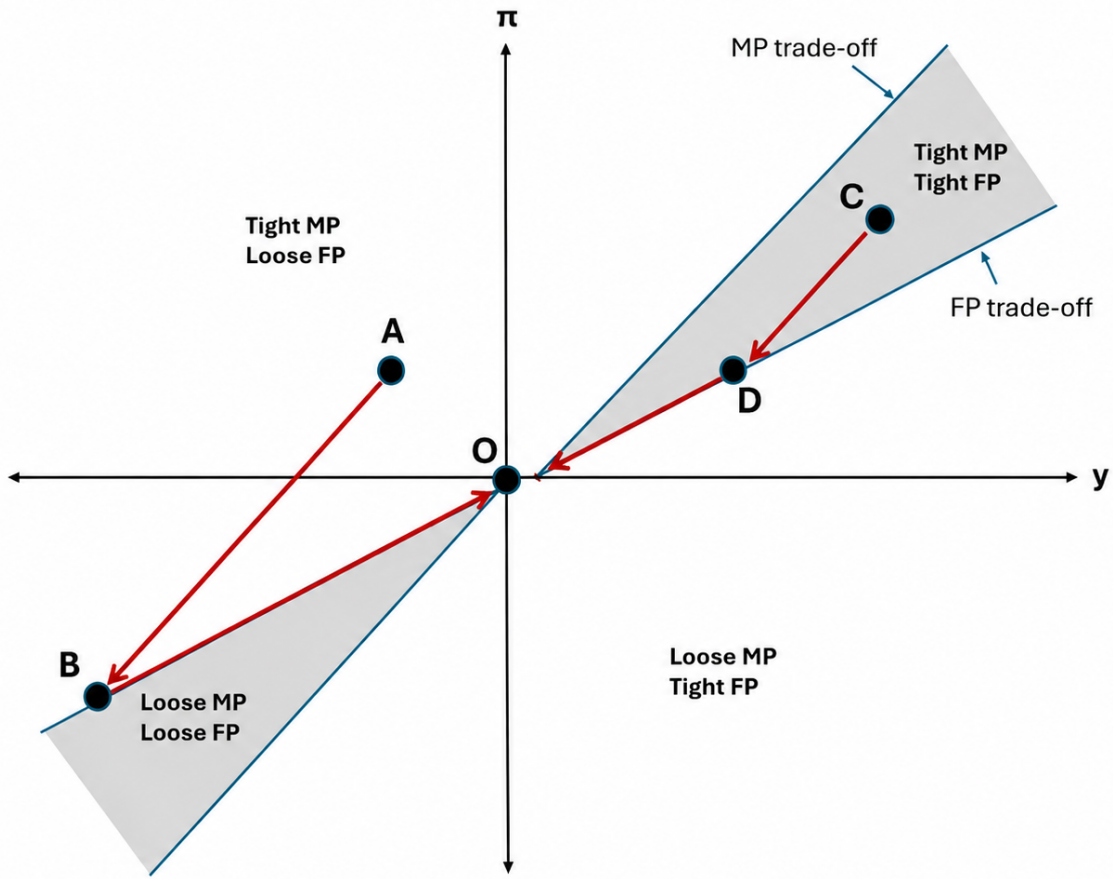
and

$$r = \frac{\alpha_r}{\beta_r \alpha_g - \alpha_r \beta_g} u \tag{5}$$

- A positive shock implies both a higher interest rate and higher government spending!

The Core Mechanism

Towards the bull's eye



Analytical framework

- Galí and Monacelli (2005) extended with bells and whistles.
- Private consumption

$$c_t - hc_{t-1} = \mathbb{E}_t \left(c_{t+1} - hc_t \right) - \frac{1-h}{\sigma} \left(i_t - \mathbb{E}_t \pi_{t+1} \right)$$

  where $c_t = \alpha c_{h,t} + (1-\alpha) c_{f,t}$, $p_t = \alpha p_{h,t} + (1-\alpha) p_{f,t}$ and π_t is CPI inflation.
- The market for domestic goods clear

$$y_t = c_y \left\{ \alpha c_t + (1-\alpha) \left[y_t^* + \eta \left(tot_t + q_t \right) \right] \right\} + \left(1 - c_y \right) g_t$$

Analytical framework

- Inflation equations

$$\begin{aligned}\pi_{h,t} - \gamma_h \pi_{h,t-1} &= \mathbb{E}_t \left(\pi_{h,t+1} - \gamma_h \pi_{h,t}\right) - \kappa_h \mu_{h,t} + z_{h,t} \\ \pi_{f,t} - \gamma_f \pi_{f,t-1} &= \mathbb{E}_t \left(\pi_{f,t+1} - \gamma_f \pi_{f,t}\right) - \kappa_f \mu_{f,t}\end{aligned}$$

  where $\mu_{j,t}$ is the average mark-up for good type $j = h, f$.

- Trade balance and NFA

$$\begin{aligned}nfa_t &= \beta^{-1} nfa_{t-1} + tb_t \\ tb_t &= y_t - c_y \left\{c_t + (1-\alpha)\, tot_t\right\} - \left(1 - c_y\right) g_t\end{aligned}$$

Analytical framework

- UIP

$$i_t = i_t^* + \mathbb{E}_t\left(\Delta e_{t+1}\right) + rp_t$$

  where $rp_t = -\xi nfa_t$ is a risk premium.

- Fiscal policy is subject to the government budget constraint

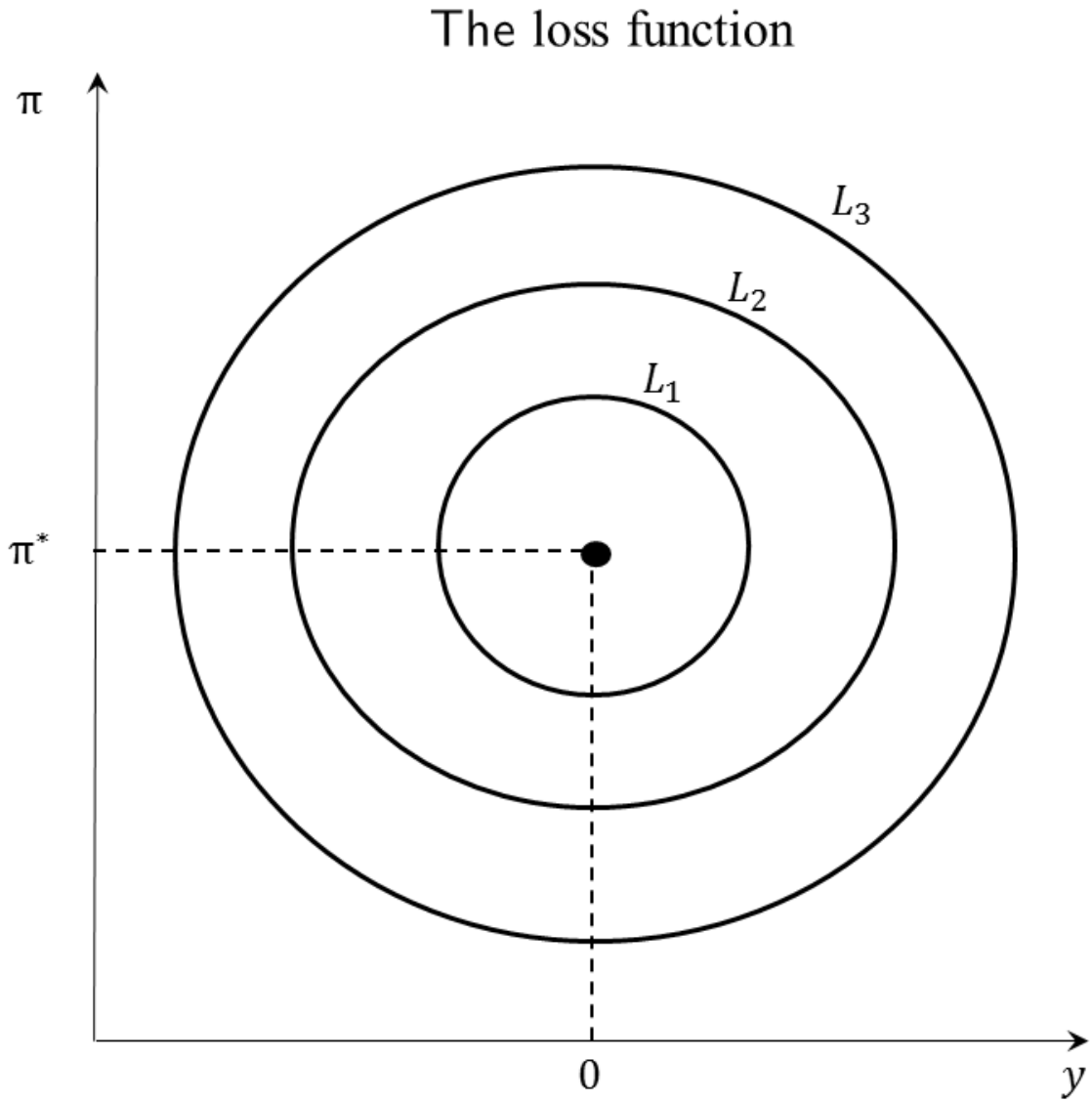
$$b_t = \beta^{-1} b_{t-1} + \left(1 - c_y\right)\left(g_t - \tau_t\right)$$

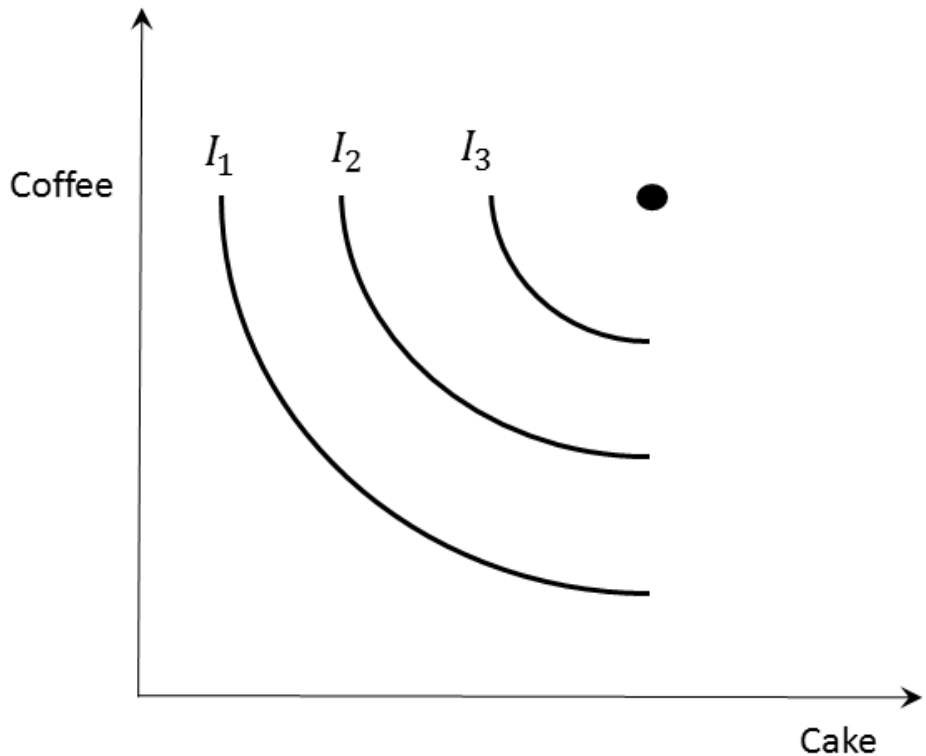
  where τ_t denotes taxes that adjust to ensure debt stability.

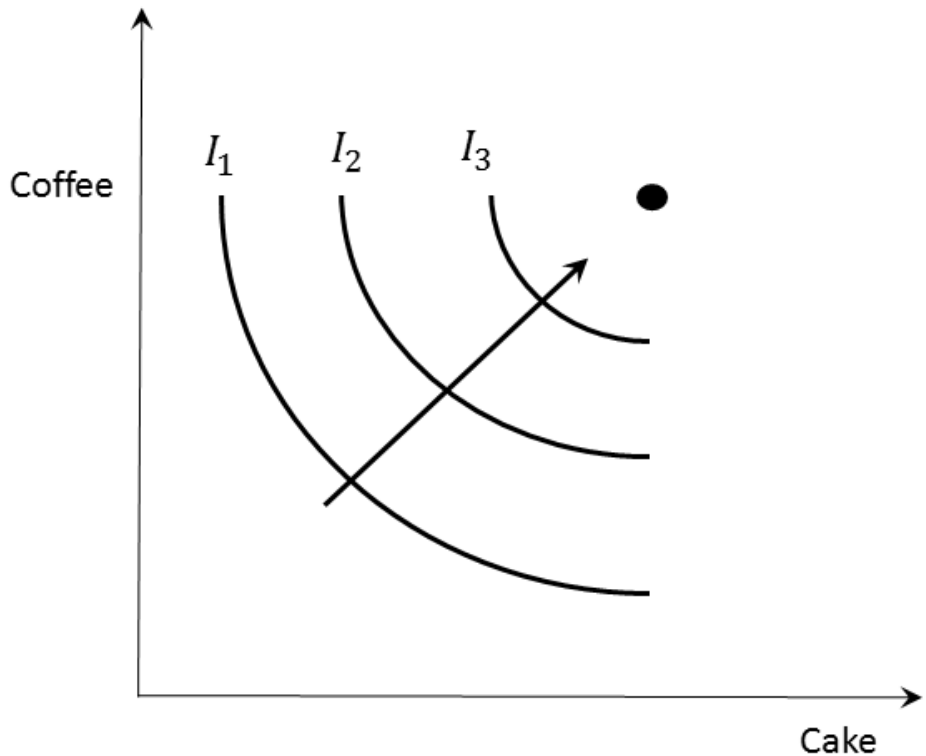
- We follow Debertoli et al. (2019) and specify a period loss function:

$$\mathcal{L}_t = \pi_t^2 + \lambda y_t^2$$

  and the objective is to minimize $\mathbb{E}_t \sum_{s=t}^{\infty} \beta^{s-t} \mathcal{L}_s$.


The loss function
π
L_3
L_2
L_1
π^*
0
y


Coffee
I_1
I_2
I_3
Cake


Coffee
I_1
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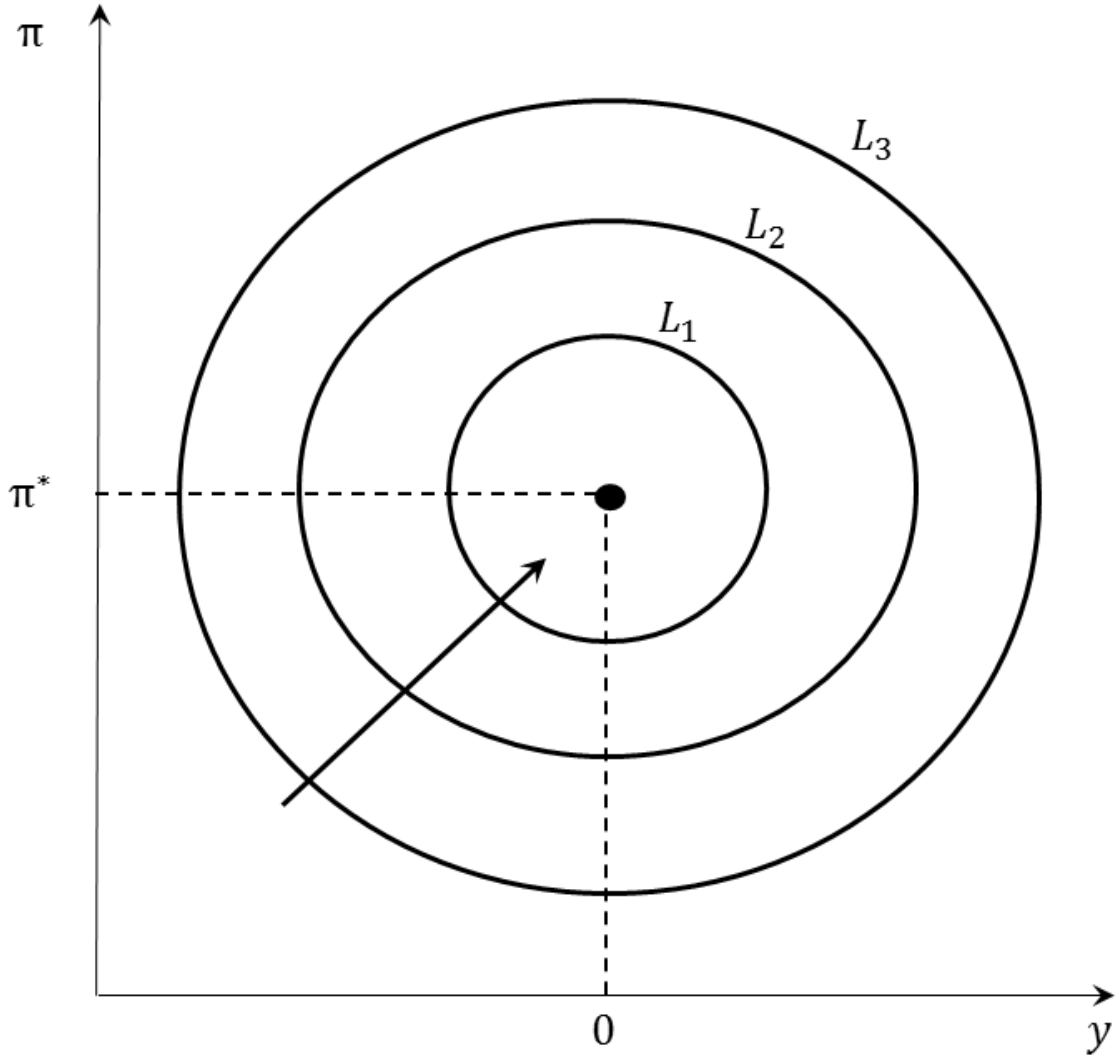
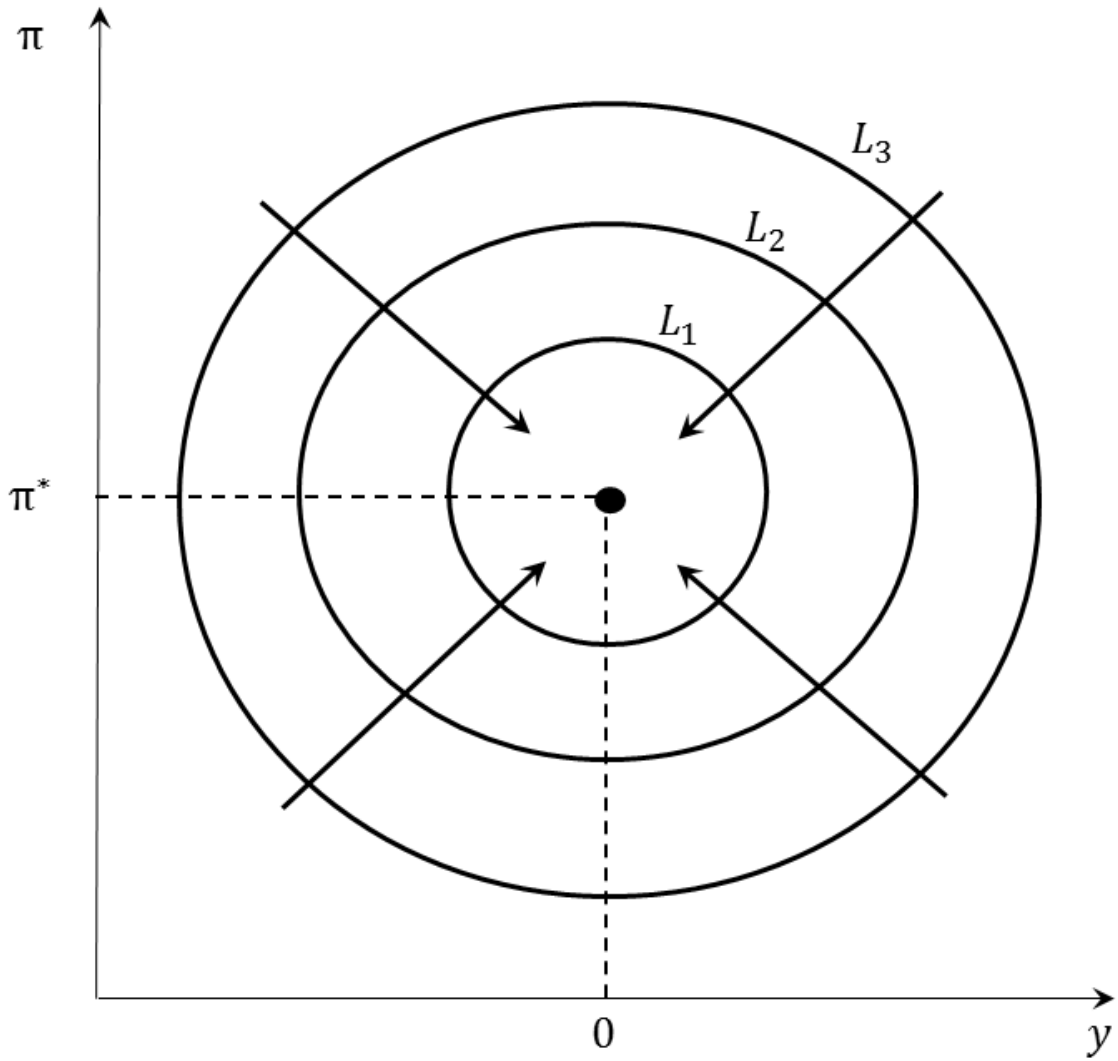
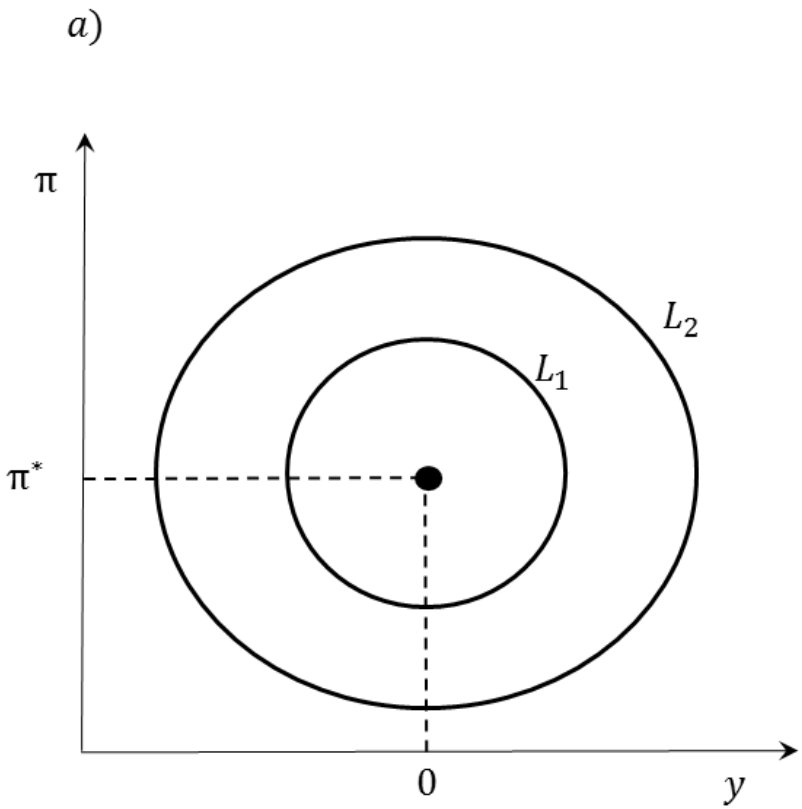
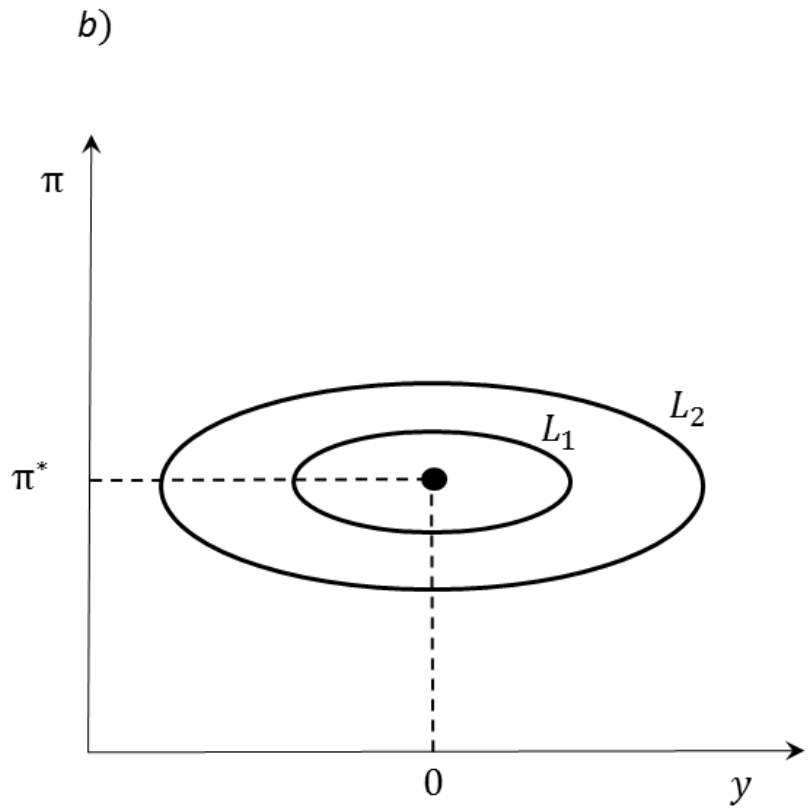

π
L_3
L_2
L_1
π^*
0
y


π
L_3
L_2
L_1
π^*
0
y

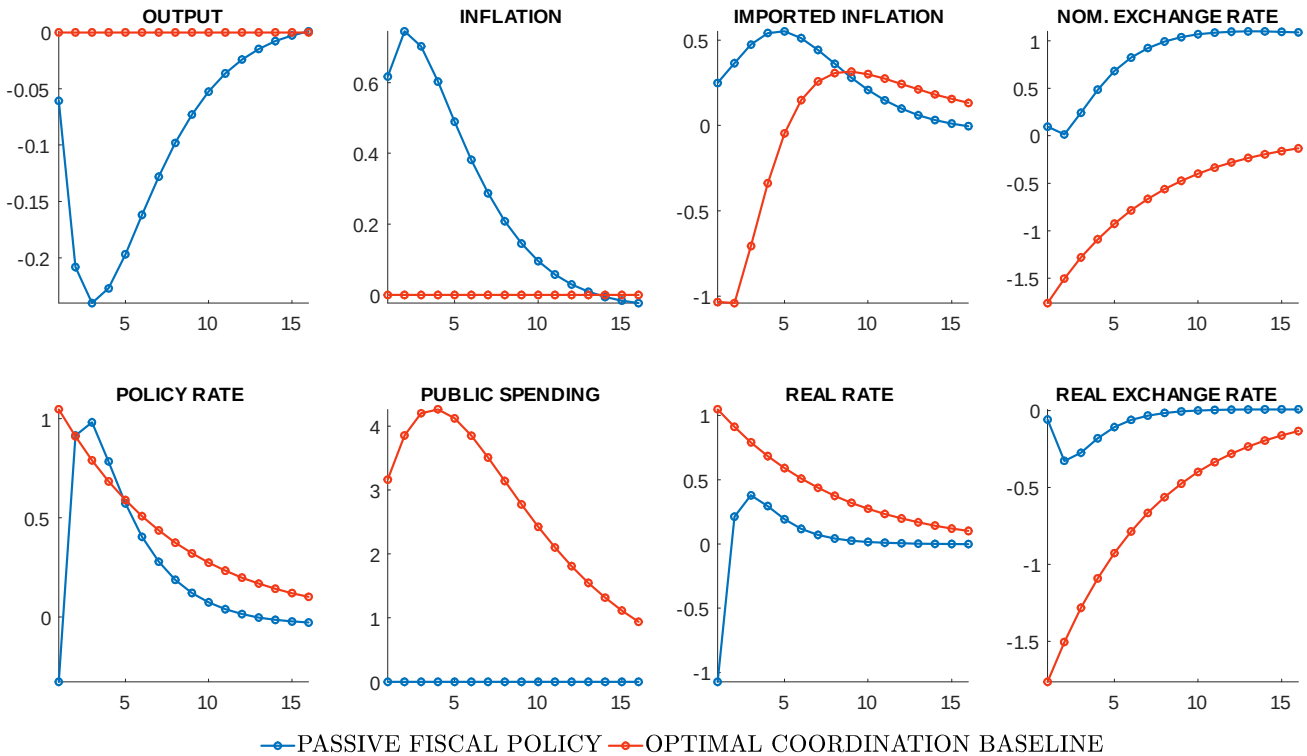

a)
π
π*
L_2
L_1
0
y


b)
π
π*
L_2
L_1
0
y

Policy coordination in response to an inflation shock

- We now analyze policy responses in the full dynamic model.
- Parameters are set to standard values in the literature.
- We first consider the conventional case with active monetary policy and passive fiscal policy, and then the jointly optimal policy mix.
- With unrestricted use of both instruments, inflation and output can be fully stabilized. Provides a useful reference for evaluating more constrained policy settings.

Figure 2: Inflation shock, passive vs. optimal fiscal policy



Responding to Inflation Shocks: Divergent Policy

- **The power of divergence**: In the event of an inflation shock, monetary and fiscal policy should be "divergent" (pulling in opposite directions).
  - The **central bank raises interest rates** to strengthen the exchange rate, lowering imported inflation.
  - The **government deploys expansionary fiscal policy** to offset the drop in demand caused by the rate hike.
- **The Result**: The increase in inflation is completely offset by the stronger exchange rate, and the output gap never has to turn negative.

Responding to Demand Shocks

- **The Optimal Response**: When a demand shock hits, only fiscal policy should respond.
- **The Danger of Rate Cuts**: If the central bank lowers interest rates in response to a negative demand shock, the exchange rate will weaken, and inflation will become too high.
- **Fiscal Substitution**: Expansionary fiscal policy can replace lost private demand perfectly. Because it does not directly affect the exchange rate, it shields both the real economy and inflation simultaneously.

Responding to Exchange Rate Shocks

- **The Shock**: A risk premium shock causes the domestic currency to depreciate.
- **Monetary Defense**: The central bank should increase policy rates by the exact same amount as the risk premium increase, returning the exchange rate to its initial level.
  - *With only monetary policy:* only partly bringing the exchange rate back to the initial level since the increase in policy rates would lover economic activity.
- **Fiscal Support**: Because this high interest rate would typically cause a recession, fiscal policy must become expansionary to neutralize the effect on the real economy. Once again, divergence is necessary.

Costs of Using Policy Tools

- The benchmark result of perfect stabilization relies on unrestricted use of policy instruments.
- In practice, large adjustments in interest rates and fiscal instruments may be costly.
  - Fiscal policy may involve distortionary taxation or political constraints.
  - Aggressive interest rate changes may create financial instability.
- To capture such considerations, we augment the loss function with adjustment costs:

$$\mathcal{L}_t = \pi_t^2 + \lambda_y y_t^2 + \lambda_g g_t^2 + \lambda_r r_t^2$$

Introducing Cost of Fiscal Policy

- **A Muted Response:** Introducing these costs into the loss function dictates that fiscal policy should respond less aggressively to all economic shocks.
- **Loss of Perfection**: Perfect stabilization is no longer possible; policymakers must balance three competing goals (inflation, output, and minimizing fiscal variations), meaning none will be perfectly met.
- **Key results for coordination:**
  - MP&FP should be *congruent* in the case of a demand shock, but still divirgent for inflation (and exchange rate) shocks.
  - Weaker MP response to inflation (and exchange rate) shocks.

Introducing Costs for Both Policy Instruments

- **Impact of small monetary policy costs:** The model shows that if the costs associated with changing the interest rate are relatively small, it remains optimal for monetary and fiscal policy to be "divergent" during an inflation (or exchange rate) shock.
- **The tipping point to congruence**: It is only when the costs of changing the interest rate become sufficiently high that the optimal strategy shifts, making it necessary for monetary and fiscal policy to pull in the same direction (congruent) to manage inflation (and exchange rate) shocks.

The "Magic" of Automatic Stabilizers

- **Discretionary vs. Automatic**: Automatic stabilizers inherently make fiscal policy expansionary when activity is low (e.g., more unemployment benefits) and contractionary when activity is high (e.g., higher tax revenues).
- **Synergy**: Under an inflation-targeting monetary regime, automatic stabilizers naturally mimic the optimal policy responses!
- **During Demand Shocks**: They naturally ensure fiscal policy is congruent with the central bank.
- **During Inflation Shocks**: When the central bank hikes rates, automatic stabilizers automatically expand to soften the economic blow, naturally creating the optimal divergent response without political gridlock.