Discussion of
"Labor Market Shocks and Monetary Policy"

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Stylized Model

- Two agents: permanent income & hand-to-mouth
- Retailers purchase labor service at a price p_t^l/P_t and set price with Calvo/Rotemberg:

$$\pi_t = \delta_p \ln(p_t^l/P_t) + \beta\pi_{t+1}$$

- All jobs homogenous ($z = 1$)
  - When $U \to E$, piece rate $\gamma \in [0,1]$, lose job at rate s, OJS intensity ν_t
  - When E meets other employers, extract full surplus, $\gamma = 1$
- Free entry

$$k = q(\theta_t)\frac{u_{t-1}}{u_{t-1} + \nu_t(1 - u_{t-1})}J_t, \qquad J_t = (1-\gamma)(p_t^l/P_t) + \frac{(1-s)(1-\nu_{t+1}f(\theta_{t+1}))}{R_t}J_{t+1}$$

- Market clearing: $C_t = Y_t = (1 - u_t)$ (assume $b, k \to 0$)
- Monetary policy sets $\{R_t\}$

Supply Block

- Generalized Phillips Curve: Ask

$$\{Y_t, R_t, \nu_t\}_{t=0}^{\infty} \to \{\pi_t\}_{t=0}^{\infty}$$

- Canonical NKPC: $\hat{\pi}_t = \kappa \sum_{s=t}^{\infty} \beta^{s-t} \hat{Y}_s$

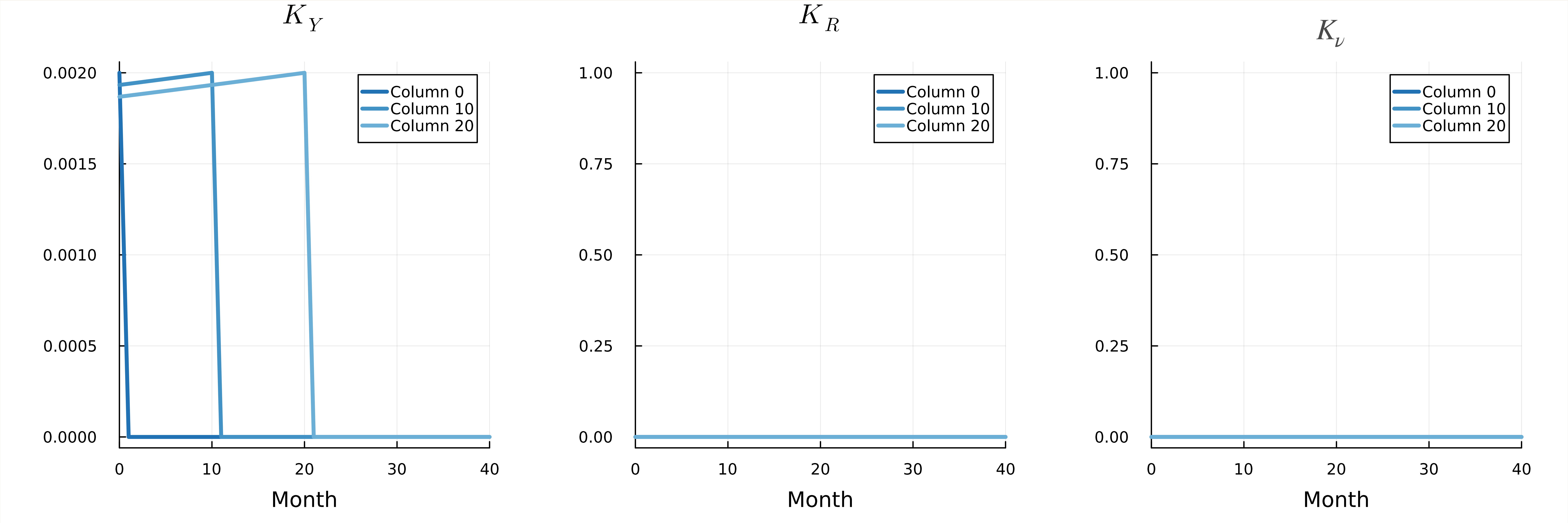
- Steps toward obtaining GPC:

1. $\{Y_t\}$ pins down $\{u_t\}$, from $Y_t = 1 - u_t$
2. $\{u_t, \nu_t\}$ pins down $\{v_t\}$, from labor market flows
3. $\{v_t, \nu_t\}$ and $\{R_t\}$ pin down $\{p_t^l / P_t\}$, from free entry
4. $\{p_t^l / P_t\}$ pin down inflation through price-setting equation

Phillips Curve in the Textbook NK

- Linearize:

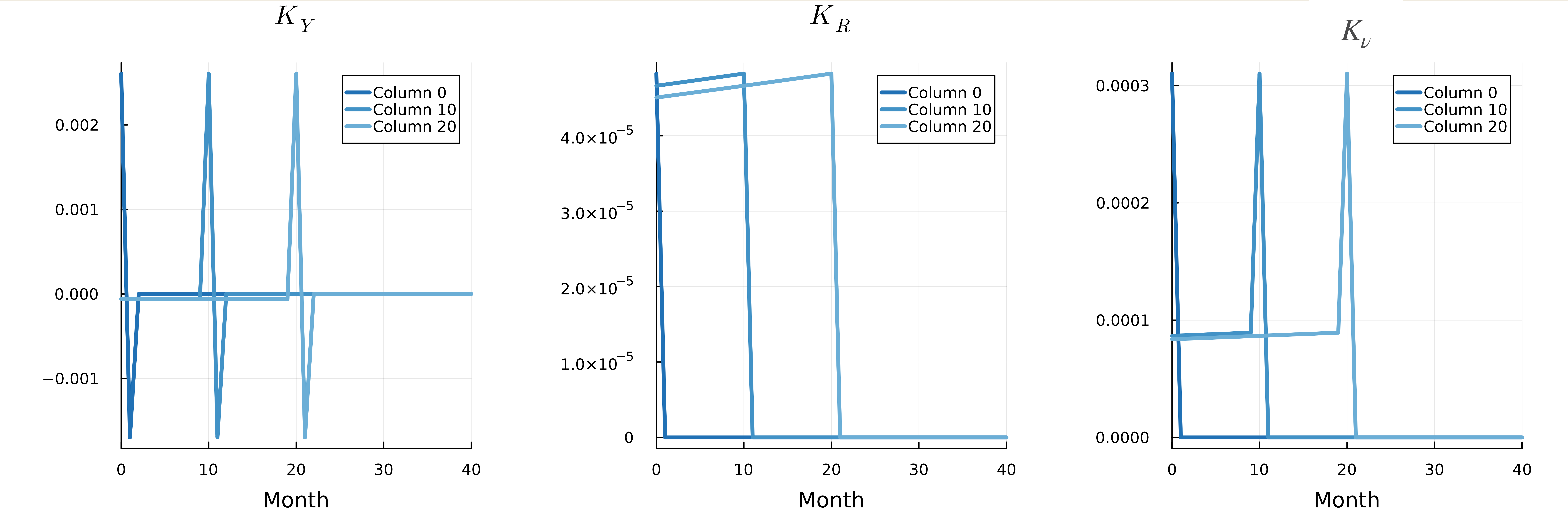
$$\hat{\pi} = \mathbf{K}_Y \hat{\mathbf{Y}} + \mathbf{K}_R \hat{\mathbf{R}} + \mathbf{K}_\nu \hat{\nu}$$



Philips Curve with Labor Market

$$\hat{\pi} = \mathbf{K}_Y \hat{\mathbf{Y}} + \mathbf{K}_R \hat{\mathbf{R}} + \mathbf{K}_\nu \hat{\nu}$$

- One can prove $\mathbf{K}_\nu \geq \mathbf{0}$:
  - positive OJS shock $\Rightarrow$ congestion $\uparrow$ $\Rightarrow$ positive markup shock
- Labor market also changes the entire shape of GPC, $\mathbf{K}_Y$ and $\mathbf{K}_R$



Demand Block

- Likewise, ask

$$\{Y_t, R_t, \nu_t\}_{t=0}^{\infty} \to \{C_t\}_{t=0}^{\infty}$$

  - $\{Y_t, \nu_t\}$ uniquely map to $\{v_t\}$ and $\{l_t^i\}$ from labor market flow
  - $\{v_t, \nu_t, R_t\}$ pin down $\{p_t^l/P_t\}$ from free entry
  - $\{p_t^l/P_t\}$ and $\{l_t^i\}$ determine the sequence of labor and profits income
  - In turn, sequence of income and interest rates give $\{C_t\}$

- Imposing market clearing $\Rightarrow$ IS curve (intermpotral Keynsian cross):

$$\mathbf{Y} = C(\mathbf{Y}, \mathbf{R}, \nu)$$

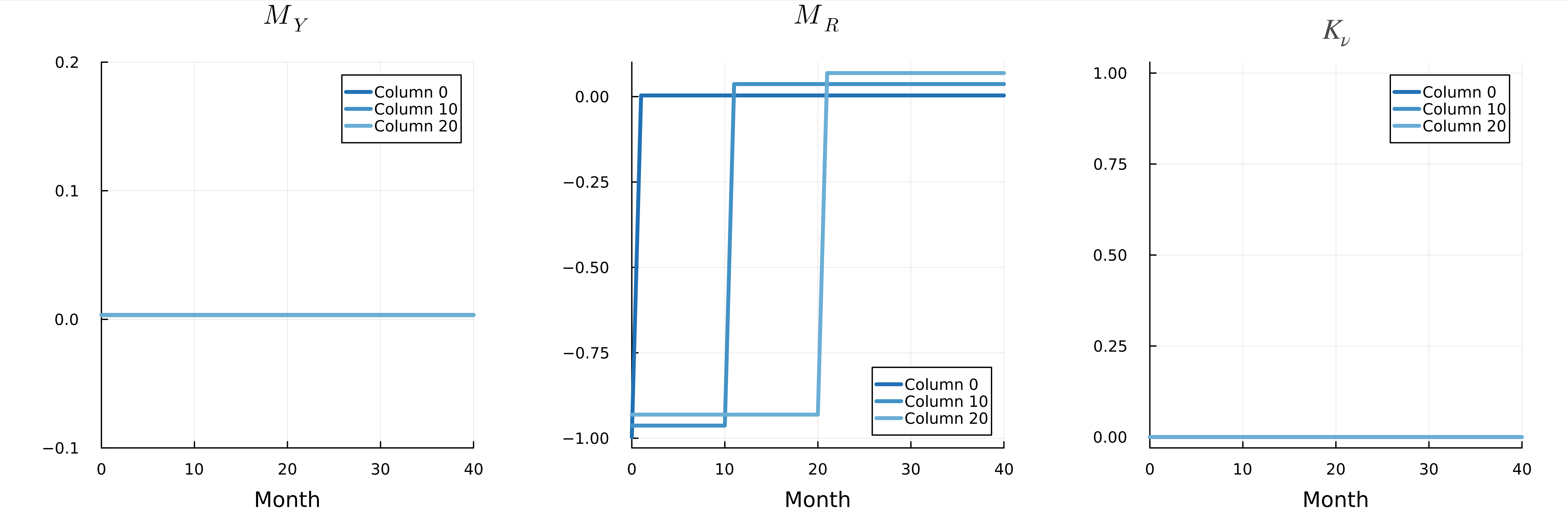
- Linearizing

$$\hat{\mathbf{Y}} = \mathbf{M}_Y \hat{\mathbf{Y}} + \mathbf{M}_R \hat{\mathbf{R}} + \mathbf{M}_\nu \hat{\nu}$$

Representative Agent NK

- Moscaini & Postel-Vinay (2022): RANK

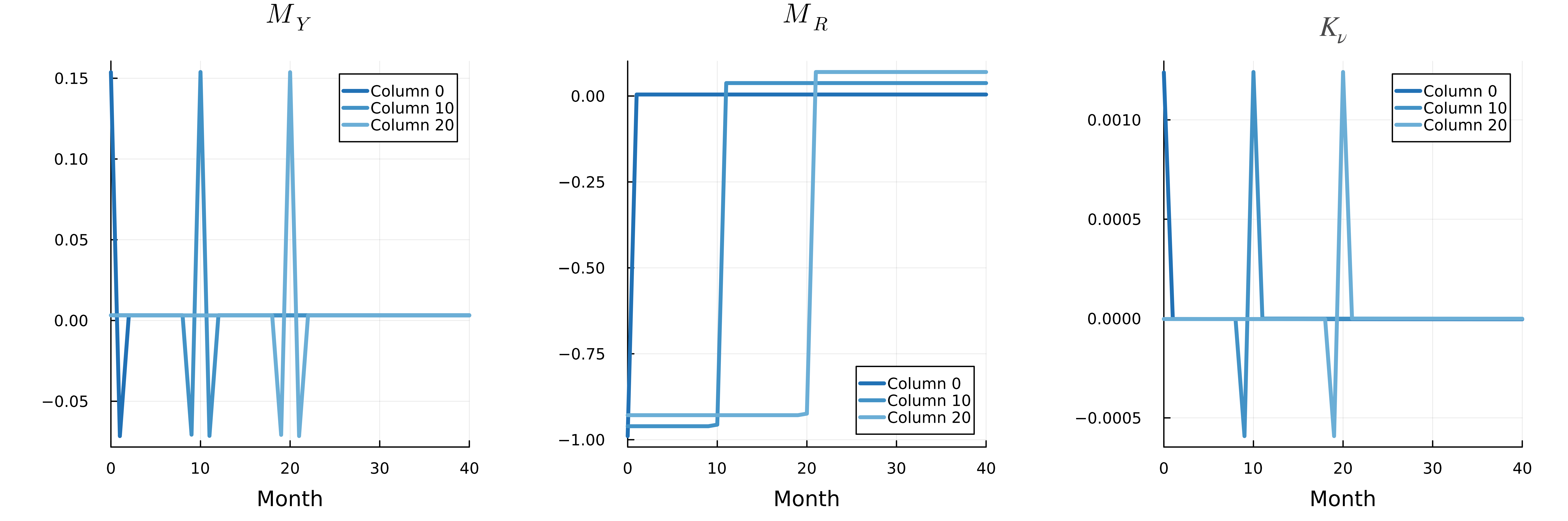
$$\hat{\mathbf{Y}} = \mathbf{M}_Y \hat{\mathbf{Y}} + \mathbf{M}_R \hat{\mathbf{R}} + \mathbf{M}_\nu \hat{\nu}$$



Two Agent NK

$$\hat{\mathbf{Y}} = \mathbf{M}_Y \hat{\mathbf{Y}} + \mathbf{M}_R \hat{\mathbf{R}} + \mathbf{M}_\nu \hat{\nu}$$

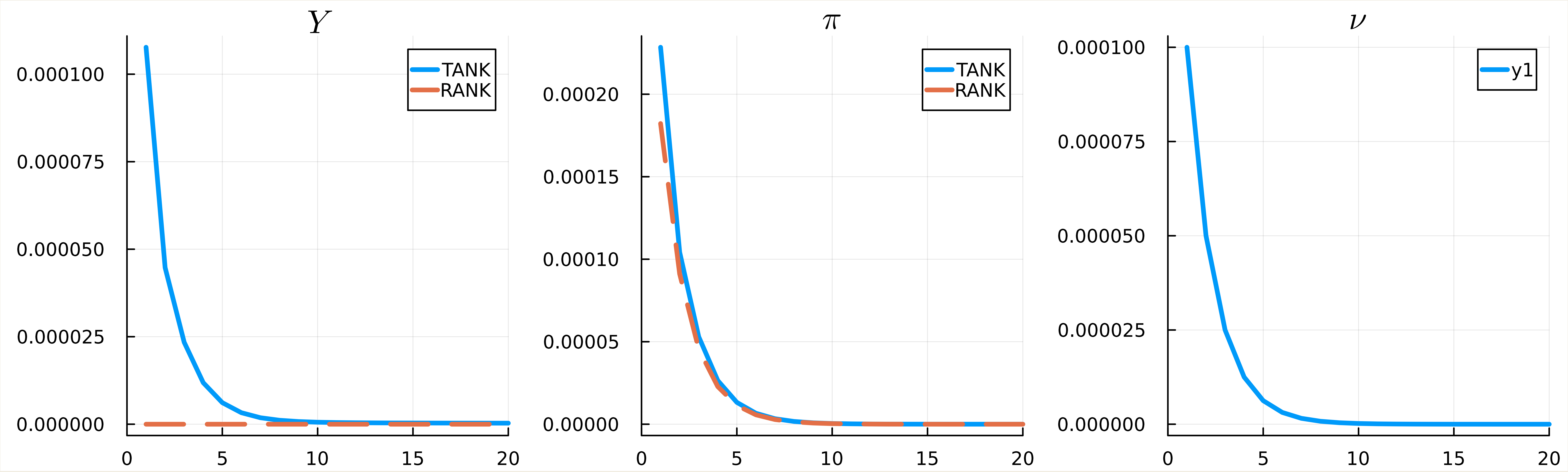
- $\hat{\nu} \uparrow$ redistribute from profits to wages of employed $\Rightarrow$ positive agg. demand shock
- Labor market also changes shape of IKC: $\mathbf{M}_Y$



IRF to OJS Shock (constant R)

$$\hat{\pi} = \mathbf{K}_Y \hat{\mathbf{Y}} + \mathbf{K}_R \hat{\mathbf{R}} + \mathbf{K}_\nu \hat{\nu}$$

$$\hat{\mathbf{Y}} = \mathbf{M}_Y \hat{\mathbf{Y}} + \mathbf{M}_R \hat{\mathbf{R}} + \mathbf{M}_\zeta \hat{\zeta}$$



- $\nu \uparrow$ is positive markup shock **and** positive agg. demand shock
  $\Rightarrow$ amplifies inflation response relative to RANK

Dual Mandate Optimal Monetary Policy

$$\min_{\{\hat{Y}_t, \hat{\pi}_t, \hat{R}_t\}} \sum_t \beta^t [\hat{\pi}_t^2 + \Psi \hat{Y}_t^2]$$

$$\text{s.t.} \quad \hat{\pi} = \mathbf{K}_Y \hat{\mathbf{Y}} + \mathbf{K}_R \hat{\mathbf{R}} + \mathbf{K}_\nu \hat{\nu}$$

$$\hat{\mathbf{Y}} = \mathbf{M}_Y \hat{\mathbf{Y}} + \mathbf{M}_R \hat{\mathbf{R}} + \mathbf{M}_\nu \hat{\nu}$$

- FOC:

$$\mathbf{Q}_{\pi,R} \mathbf{b} \hat{\pi} + \Psi \mathbf{Q}_{Y,R} \mathbf{b} \hat{\mathbf{Y}} = \mathbf{0}$$

where $\mathbf{Q}_{\pi,R} \equiv \mathbf{K}_Y[\mathbf{I} - \mathbf{M}_Y]\mathbf{M}_R + \mathbf{K}_R$, $\mathbf{Q}_{y,R} \equiv \mathbf{K}_Y[\mathbf{I} - \mathbf{M}_Y]\mathbf{M}_R$, $\mathbf{b} \equiv \text{diag}[1, \beta, \beta^2, \ldots]$

- With one-shock (as in here), can be implemented with

$$\hat{\mathbf{R}} = \Xi_{R,\nu} \hat{\nu} \quad \hat{\mathbf{R}} = \Xi_{R,\pi} \hat{\pi}, \quad \hat{\mathbf{R}} = \Xi_{R,y} \hat{\mathbf{Y}}, \quad \text{or} \quad \hat{\mathbf{R}}_t = \tilde{\Xi}_{R,\pi} \hat{\pi} + \tilde{\Xi}_{R,y} \hat{\mathbf{Y}}$$

Not necessary to target EE rate.

BKMS Implementation

- BKMS argument

$$\min_{\{\hat{Y}_t,\hat{\pi}_t,\hat{R}_t,\Phi_u,\Phi_{EE}\}} \sum_t \beta^t[\hat{\pi}_t^2 + \Psi_y \hat{Y}_t^2]$$

s.t. $\hat{\pi} = \mathbf{K}_Y \hat{\mathbf{Y}} + \mathbf{K}_R \hat{\mathbf{R}} + \mathbf{K}_\nu \hat{\nu}$

$\hat{\mathbf{Y}} = \mathbf{M}_Y \hat{\mathbf{Y}} + \mathbf{M}_R \hat{\mathbf{R}} + \mathbf{M}_\nu \hat{\nu}$

$\hat{R}_t = 1.5\hat{\pi}_t + \Phi_u u_t + \Phi_{EE} EE_t$

$<$

$$\min_{\{\hat{Y}_t,\hat{\pi}_t,\hat{R}_t,\Phi_u\}} \sum_t \beta^t[\hat{\pi}_t^2 + \Psi_y \hat{Y}_t^2]$$

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$\hat{\mathbf{Y}} = \mathbf{M}_Y \hat{\mathbf{Y}} + \mathbf{M}_R \hat{\mathbf{R}} + \mathbf{M}_\nu \hat{\nu}$

$\hat{R}_t = 1.5\hat{\pi}_t + \Phi_u u_t$

1. Qualitatively, has to be true
2. Quantitatively, 10% reduction in losses. Help me understand.
   - Is this big? Relative to what? Output, UE rate, ALP, lags?
   - If so, why? $\Phi_\pi = 1.5$? $\Phi_y = 0$? Lack of leads and lags? Multiple shocks?
   - Starting from a relaxed problem helpful. Want to understand the principle

Beyond Dual Mandate

- To me, an interesting question is to dig deeper into the welfare function
- Suppose in the steady state, ν is at the level that ensures Hosios condition
- Then, any fluctuations in $\nu \Rightarrow$ distortion (failure of Hosios)
- My conjecture (in RANK case):

$$\sum_t \beta^t [\hat{\pi}_t^2 + \Psi_y \hat{Y}_t^2 + \Psi_{EE} \widehat{EE}_t^2]$$

  Policymakers should care about EE fluctuations above and beyond the dual mandate

- Here, EE is a pure rent-seeking activity
- Opposite view: EE is a productivity-enhancing activity

Is EE Rent-Seeking or Reallocation?

- Heterogenous $z \Rightarrow$ TFP of the economy endogenous to ν, $A(\nu)$
- How does $\nu \uparrow$ affect aggregate demand, $C(\mathbf{Y}, \mathbf{R}, \nu)$?
  - An increase in TFP $\Rightarrow$ less employment needed to achieve $\mathbf{Y}$
  - Increases unemployment by $du = \frac{A'(\nu)}{A(\nu)} d\nu > 0 \Rightarrow$ reduce the income of u
- Now it's not clear $\nu \uparrow$ is positive or negative agg. demand shock…

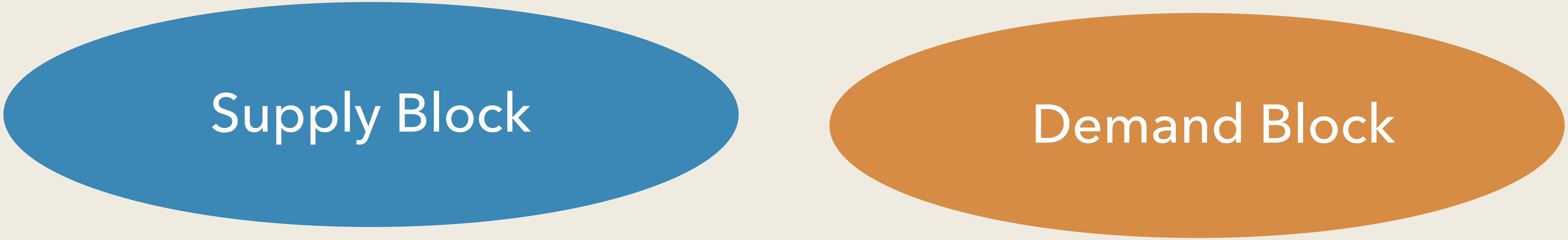
$$d\mathbf{Y} = \mathbf{M}_Y d\mathbf{Y} + \mathbf{M}_R d\mathbf{R} + \mathbf{M}_\nu d\nu$$

$+? - ?$

What moments discipline the sign of $\mathbf{M}_\nu$? $MPC^u - MPC^e$? Δw upon job-changes?

- Normative: How should the CB weigh along the job-ladder, $\hat{Y}_t^\omega = \int \omega(z) l_t(z) dz$?

Summary



- OJS + HANK $\Rightarrow$ supply and demand block no longer separable

  OJS shocks = markup shocks + agg. demand shocks

- My discussions:
  1. Broader implications for GPC and IKC? What moments determine $\mathbf{K}$ and $\mathbf{M}$?
  2. Unclear $\nu \uparrow$ is a positive or negative agg. demand shock. Can go either way.
  3. Normative: Study relaxed problem. Going beyond dual mandate promising.

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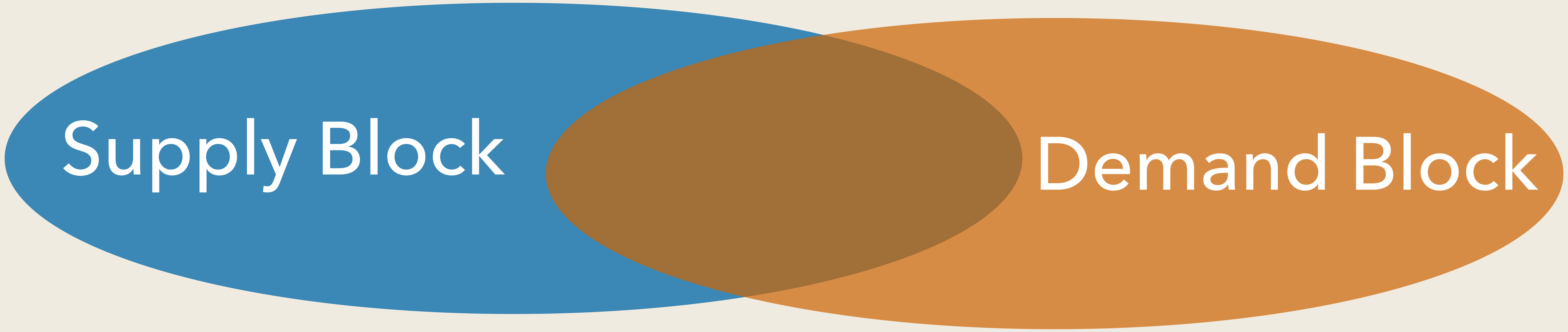

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