Monetary Policy without Redistributive Concerns

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June 2026

Introduction

Optimal Monetary Policy with Heterogeneous Agents

What is optimal monetary policy if CB concerned only with efficiency?

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Approach: Define an **Efficiency Mandate** in a general HANK model. [∼ cost-benefit analysis]

- ➢ Sticky wages, sticky prices, incomplete markets, cyclical income risk.
- ➢ Evaluate policy by aggregate surplus after winners compensate losers. [Baqaee–Burstein, 2025]
  - No interpersonal comparisons of utility.
  - Invariant to monotone transformations of utility.
  - Incorporates general-equilibrium feedbacks. [Contrast with Kaldor-Hicks]
- ➢ Criterion is aggregate productivity $A(\mathcal{P})$, not a social welfare function.

Preview:

- ➢ Many HANK-RANK differences vanish under pure efficiency.
- ➢ The key channel is dispersion in cyclical labor-income incidence.

Main results at a glance

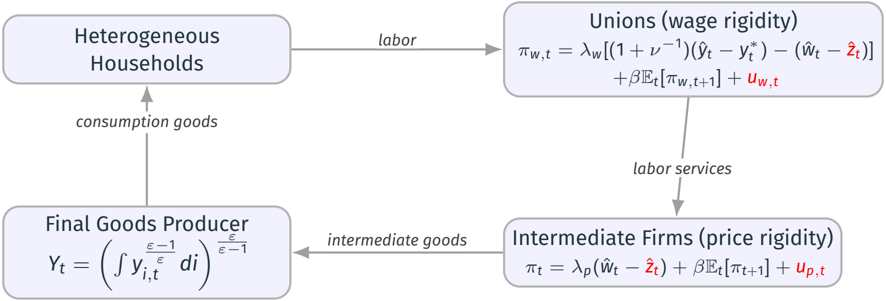
1. **Sticky-price HANK:** optimal policy equals RANK.
2. **Canonical sticky-wage HANK (no cyclical incidence):** optimal policy equals RANK.
3. **With cyclical income risk:** output stabilization gets higher weight than in RANK.

Quantitatively (baseline):

- Incidence dispersion implies about **45% higher output-stabilization weight**.
- Under cost-push shocks, optimal HANK policy contracts output less than RANK.

Model and Criterion

General HANK environment with four building blocks:



Policy: Monetary policy sets time/state-contingent interest rate i_t.

Shocks: Technology, cost-push, wage-push, and demand/financial shocks.

Households: standard Aiyagari-type model with idiosyncratic labor productivity risk $z_{h,t}$ and borrowing constraints

- Preferences $\succeq$ over stoch. seq. $\boldsymbol{x}_h \equiv \{c_{h,t}, l_{h,t}\}$. Can be represented:

$$U(\mathbf{x}_h) \equiv (1-\beta)\mathbb{E}_0 \sum_{t=0}^{\infty} \beta^t \left[\frac{1}{1+\chi} \log c_{h,t} + \frac{\chi}{1+\chi} \log(l_{h,t}) \right]$$

- Budget constraint:

$$P_t c_{h,t} + \frac{a_{h,t}}{(1+i_t)(1+\delta_t)} + \sum_k q_{k,t} \tilde{a}_{k,h,t} = y_{h,t} + a_{h,t-1} + \sum_k R_{k,t} \tilde{a}_{k,h,t-1} + \overbrace{\tilde{t}_{h,t}}^{\text{Offset savings wedge } \delta_t}$$

- Borrowing constraint:

$$\Omega(a_{h,t}, \{\tilde{a}_{k,h,t}\}_k) \geq 0$$

- At time 0, also compensatory transfers $T_{h,0}$ such that $\int T_{h,0} dh = 0$.

Households

Households: standard Aiyagari-type model with idiosyncratic labor productivity risk and borrowing constraints

➢ **Standard sticky-wage HANK**: Labor supply chosen by union with incidence rule

$$n_{h,t} = \Gamma(N_t; z_{h,t}, a_{h,t-1}, \tilde{\boldsymbol{a}}_{h,t-1})N_t, \qquad l_{h,t} + n_{h,t} = H$$

[Cyclical Income Risk: Werning (2015), Auclert–Rognlie (2018), Alves et al. (2020)]

- H is "productivity" of time endowment. [Baseline $H = 1$]

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[Cyclical Income Risk: Werning (2015), Auclert–Rognlie (2018), Alves et al. (2020)]

- H is "productivity" of time endowment. [Baseline $H = 1$]
- Assume: If N_t is at steady-state, then labor supply is individually optimal
- Let incidence elasticity

$$\gamma_h \equiv \frac{d \log \Gamma(N_t; z_{h,t}, a_{h,t})}{d \log N_t}$$

  How relative employment of h responds to aggregate employment.

➢ **Income**: + firm profits with same incidence as labor income

$$y_{h,t} = z_{h,t}\Gamma(N_t; z_{h,t}, a_{h,t})[\tilde{W}_t N_t + \underbrace{\Xi_t}_{\text{Firm Profits}}] = z_{h,t}\Gamma(N_t; z_{h,t}, a_{h,t})P_t Y_t.$$

The Efficiency Criterion

More

Key concept: Aggregate Productivity [Baqaee–Burstein, 2025]

- Measured in factor productivity $= H$ (factor = time endowment to produce leisure and labor)

[Baseline $H = 1$]

1. Given the data, fix the status quo allocation: $\mathbf{x}^0 = \{c^0_{h,t}, l^0_{h,t}\}$ under policy $\mathcal{P}^0 \equiv \{i^0_t\}$

The Efficiency Criterion

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2. Consider new policy $\mathcal{P}$.

- New set of equilibria $\mathcal{X}(H; \mathcal{P})$ given one-off time-zero transfers $\{T_{h,0}\}$

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2. Consider new policy $\mathcal{P}$.

➢ New set of equilibria $\mathcal{X}(H; \mathcal{P})$ given one-off time-zero transfers $\{T_{h,0}\}$

3. Largest contraction in factor productivity, s.t. all households still as well off as in status quo

$$A(\mathcal{P}) \equiv \max\{H : \text{ there exists } \mathbf{x} \in \mathcal{X}(1/H, \mathcal{P}), \text{ with } \mathbf{x}_h \succeq \mathbf{x}^0_h, \text{ for all } h\}$$

- By construction $A(\mathcal{P}^0) = 1.0$.
- If $A(\mathcal{P}) = 1.1$, can achieve same utility for all agents using $\sim 10\%$ less time.
  - There is surplus to generate Pareto improvement.
- Important: no comparison of utils across agents, inv. to monotone transf. of util.

The Efficiency Mandate Optimal Policy

Definition 1 (The Efficiency Mandate)

The optimal policy solves

$$\max_{\mathcal{P}} A(\mathcal{P})$$

- Optimal policy problem: look for $\mathcal{P}$ that maximizes aggregate productivity
- New policy generates allocation set $\mathcal{X}(1;\mathcal{P})$, but no stance on which of these points to choose

  [No redistributive concerns]
- Potential consensus: if $A(\mathcal{P}) > 1$, there is a Pareto improvement relative to status quo

Key Properties of Efficiency Criterion

Example: RANK Economy

Illustrate in RANK model – no heterogeneity, complete markets

- ➢ No transfers: $T_{h,0} = 0 \Leftrightarrow \mathcal{X}(H, \mathcal{P})$ is a singleton [Only 1 agent]
- ➢ Easy to show that, in this model, allocations scale with H [Homothetic Preferences]

$$\mathcal{X}(H, \mathcal{P}) = \{\{H \cdot C_t(\mathcal{P}), H \cdot L_t(\mathcal{P})\}_{t \geq 0}\}$$

- $C_t(\mathcal{P}), L_t(\mathcal{P})$ are the equilibrium allocations under policy $\mathcal{P}$ when $H = 1$

$$A(\mathcal{P}) = \max \left\{ H > 0 : \{H^{-1} \cdot C_t(\mathcal{P}), H^{-1} \cdot L_t(\mathcal{P})\} \succeq \{C_t^0, L_t^0\} \right\}$$

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$$\log A(\mathcal{P}) = U(\{C_t(\mathcal{P}), L_t(\mathcal{P})\}) - U(\{C_t^0, L_t^0\})$$

  - In this case, equivalent to Lucas' measure of welfare [Lucas, 1987]

$$U(\mathbf{x}^0) = U(\lambda^{-1} \cdot \mathbf{x}(\mathcal{P})) \Leftrightarrow \log(\lambda) = U(\mathbf{x}(\mathcal{P})) - U(\mathbf{x}^0)$$

  - RANK optimal policy is equal to standard Ramsey

$$\max_{\mathcal{P}} A(\mathcal{P}) = \max_{\mathcal{P}} U(\{C_t(\mathcal{P}), L_t(\mathcal{P})\})$$

Deadweight Loss Triangle Representation of Aggregate Productivity

Harberger-Triangles Approximation

▸ Details

General method: [Baqaee–Burstein–Guerreiro, 2026]

1. Identify wedges in the model.
2. Represent the economy as an AD economy with wedges.
3. Turn any wedge into a deadweight-loss (Harberger) triangle.
4. How are triangles affected by MP?

Wedge	**Distorted margin**	**Policy-relevant object**
Price markup	Output across firms	Price inflation dispersion
Wage markup	Labor across unions	Wage inflation dispersion
Labor wedge	Hours across households	Output-gap costs
IM wedge	Consumption across households	Consumption-dispersion costs

$$\log A(\mathcal{P}) \approx \log \mathcal{D}^0 + \sum_g \underbrace{\frac{p_g y_g}{\sum_{g'} p_{g'} y_{g'}}}_{\text{importance of market } g} \underbrace{\frac{d \log y_g^{comp} \, d \log \mu_g}{2}}_{-\text{Harberger triangle}}$$

The Second-Order Approximation of Aggregate Productivity

Details

After mapping wedges to aggregates:

$$\log A(\mathcal{P}) \approx \log \mathcal{D}^0 - \frac{(1-\beta)\omega_C}{2}\mathbb{E}_0\Bigg\{ \underbrace{\sum_{t=0}^{\infty}\beta^t\left[\left(1+\nu^{-1}\right)(\hat{y}_t-\hat{y}_t^*)^2+\frac{\varepsilon}{\lambda_p}\pi_t^2+\frac{\psi}{\lambda_w}\pi_{w,t}^2\right]}_{\text{RANK losses = Avg. labor wedge + Price markups + Wage markups}}$$

$$\underbrace{+\mathrm{Var}_{\chi_h}(\gamma_h)\left[\nu^{-1}\sum_{t=0}^{\infty}\beta^t(\hat{y}_t-\hat{y}_t^*)^2+(1-\beta)\left(\sum_{t=0}^{\infty}\beta^t(\hat{y}_t-\hat{y}_t^*)\right)^2\right]}_{\text{cyclical-incidence losses}}$$

$$\underbrace{+(1-\beta)^{-1}\mathbb{E}_{\chi_h}\left[Var_{\beta,\pi}\left(d\log\frac{c_{h,t}}{Y_t}\right)\right]-\sum_{t=0}^{\infty}\beta^t\,\mathrm{Cov}_{\chi_h}\left(d\log\frac{c_{h,t}}{\bar{c}_h},\gamma_h\right)(\hat{y}_t-\hat{y}_t^*)}_{\text{incomplete-market losses and incidence interaction}}\Bigg\}.$$

Proposition

Maximizing this quadratic approximation gives a first-order approximation to optimal policy around a no-shocks, zero-inflation, efficient, steady state.

Optimal Monetary Policy

From Criterion to Policy

The quadratic criterion has three kinds of losses:

- Standard RANK losses: output gap, price inflation, wage inflation
- Cyclical-incidence losses: output gaps become more costly when γ_h differs across households
- Incomplete-market losses: dispersion in consumption and its interaction with incidence

Useful way to read the formula:

- Remove a nominal friction, and its markup-inflation loss disappears
- Set $\gamma_h = 0$, and all cyclical-incidence terms disappear
- What remains is the familiar RANK stabilization problem, plus IM losses

The key question: which IM losses can monetary policy move at first order?

Sticky Prices Only and Canonical Sticky Wages-Only Models

Two Benchmark HANK Economies: What Drops Out?

Sticky prices only

- Flexible wages remove wage-dispersion losses
- Optimal labor supply, no dispersion in labor wedges ($\gamma_h = 0$)
- **Proposition:** Remaining IM losses are orthogonal to aggregate policy

Canonical sticky wages

- Flexible prices remove price-dispersion losses
- No cyclical income risk: $\gamma_h = 0$
- **Proposition:** Remaining IM losses are orthogonal to aggregate policy

Proposition

*In both benchmarks, optimal policy under the Efficiency Mandate is **identical to the corresponding RANK policy**.*

Difference: sticky-price RANK stabilizes price inflation; sticky-wage RANK stabilizes wage inflation.

Similarity: heterogeneity does not change the efficient stabilization tradeoff.

Intuition: Monetary policy too blunt tool to affect IM wedges.

Sticky Wages with Cyclical Income Risk

Where HANK Departs from RANK

Cyclical labor-income risk: $\gamma_h \neq 0$

Some households are more exposed to aggregate fluctuations than others:

- Aggregate labor fluctuations are borne disproportionately across household types
- Output gaps create dispersion in person-specific labor wedges
- They also interact with incomplete-market distortions

Key object: incidence elasticity γ_h

Output gaps now create inefficient dispersion in labor wedges.

This is why short-run policy differs from RANK: policy can change who bears aggregate fluctuations, and that changes efficiency even after redistribution is stripped out.

Short-Run Policy with Cyclical Income Risk

Proposition

In sticky-wage HANK with cyclical income risk, the Efficiency Mandate implies the following inflation output-gap trade-off:

$$\pi_{w,t} + \hat{\psi}^{-1}(\tilde{y}_t - \tilde{y}_{t-1}) = \zeta_{\mathrm{IM}} \cdot \frac{\mathrm{Cov}_{\chi_h}(d \log c_{h,t},\, \gamma_h) - \mathrm{Cov}_{\chi_h}(d \log c_{h,t-1},\, \gamma_h)}{\mathrm{Var}_{\chi_h}(\gamma_h)}$$

where $\hat{\psi} < \psi$, $\zeta_{\mathrm{IM}} > 0$, *and* $\tilde{y}_t = \hat{y}_t - \hat{y}_t^*$ *is the output gap.*

Interpretation:

- Lower $\hat{\psi}$ means more output-gap stabilization than in RANK
- The covariance term is a short-run IM correction
- It reflects whether exposed households have high or low expected consumption growth

Why $\hat{\psi} < \psi$? Dispersion in incidence makes output gaps more costly.

Asymptotically: A Dual Mandate

Proposition

In sticky-wage HANK, the short-run IM correction vanishes asymptotically:

$$\lim_{t\to\infty} \frac{\mathrm{Cov}_{\chi_h}(d\log c_{h,t},\ \gamma_h) - \mathrm{Cov}_{\chi_h}(d\log c_{h,t-1},\ \gamma_h)}{\mathrm{Var}_{\chi_h}(\gamma_h)} = 0.$$

Hence optimal policy converges to:

$$\pi_{w,t} + \hat{\psi}^{-1}(\tilde{y}_t - \tilde{y}_{t-1}) = 0.$$

This is a dual mandate, with output weight:

$$\omega_y = 1 + \nu^{-1}\left(1 + \mathrm{Var}_{\chi_h}(\gamma_h)\right)$$

Implication:

- Long-run policy is RANK-like, but with a larger output weight
- The extra weight is exactly disciplined by cyclical income risk across households

General HANK Model with Sticky Prices and Wages

With Sticky Prices and Sticky Wages

Proposition

In the general HANK model with both sticky prices and sticky wages, optimal policy under the Efficiency Mandate is asymptotically equivalent to a dual-mandate policy:

$$\min \frac{1}{2}\mathbb{E}_0 \sum_{t=0}^{\infty} \beta^t \left\{ \omega_y \tilde{y}_t^2 + \frac{\varepsilon}{\lambda_p}\pi_t^2 + \frac{\psi}{\lambda_w}\pi_{w,t}^2 \right\}, \quad \omega_y = 1 + \nu^{-1}\left(1 + \mathrm{Var}_{\chi_h}(\gamma_h)\right).$$

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What changes relative to sticky wages only?

- Price inflation now enters as an additional stabilization objective
- The short-run IM correction is still present
- But the asymptotic force is unchanged: cyclical income risk raises the output weight

Quantitative Analysis

Calibration of a Sticky-Wage HANK Model with Cyclical Income Risk

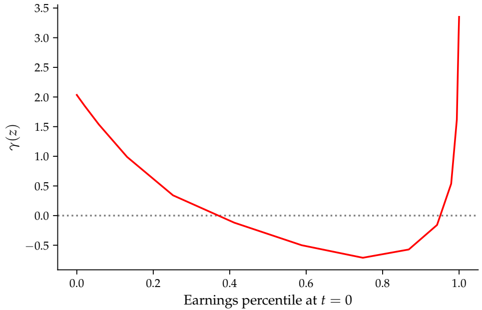
Baseline: sticky-wage HANK model (quarterly, U.S.)

Parameter	Description	Value
β	Discount factor	0.97
r	Yearly real interest rate	2%
χ	Labor disutility (Frisch $\nu = 0.75$)	0.75
$\underline{a}$	Borrowing limit (targets MPC $= 0.21$)	-4.82
λ_w	Wage Phillips curve slope	0.09
ψ	Elasticity across labor varieties	4
$\mathrm{Var}_{\chi_h}(\gamma_h)$	Incidence variance (from [Guvenen et al., 2017])	0.78
$\hat{\psi}$	Targeting parameter	2.76
ζ_{IM}	IM correction coefficient	0.04

Key implication: $\mathrm{Var}_{\chi_h}(\gamma_h) = 0.78 \Rightarrow \hat{\psi} = 2.76$, so output-stabilization weight rises by $\approx 45\%$ relative to RANK

Incidence Elasticity: Cyclical Income Risk

[Guvenen et al., 2017]

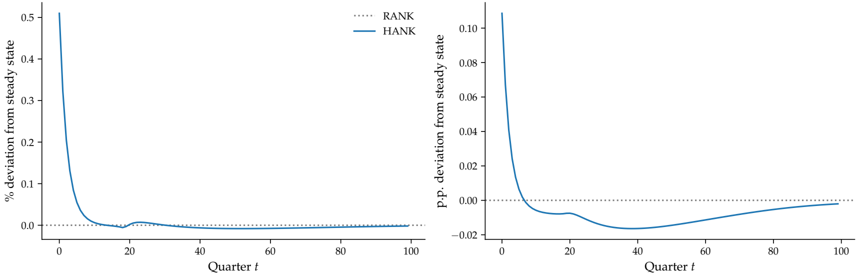


Calibration: Attribute worker betas entirely to movements in labor supply [Extreme upper bound]

- $\gamma(z)$ rises sharply at the top of the earnings distribution — high earners bear a disproportionate share of aggregate fluctuations — $Var_{\chi_h}(\gamma_h) = 0.78$

Deterministic Component of Optimal Policy

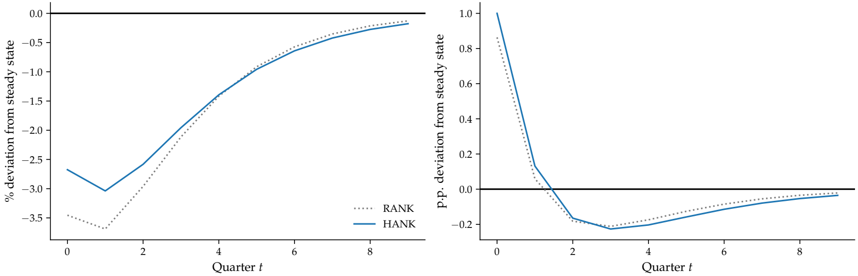
The optimal policy can be decomposed into an asymptotic dual mandate plus a short-run IM correction D_t



Main message: The short-run IM correction D_t is a **small initial expansion** — the positive covariance between γ_h and expected consumption growth implies expanding output raises welfare efficiency — but it decays to zero rapidly

Response to Cost-Push Shocks

Cost-push shock: AR(1), persistence $\rho_u = 0.5$; normalized to 1 p.p. impact on wage inflation in HANK



Main message: HANK tolerates more wage inflation and contracts output less — **present value of output gaps is** 10.7% **higher in HANK than RANK**, reflecting the higher weight on output-gap stabilization due to cyclical income risk

Conclusions

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Three main results:

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2. Canonical sticky-wage HANK ($\gamma_h = 0$): **optimal policy = RANK**
3. Cyclical income risk ($\gamma_h \neq 0$): output-gap stabilization weight $\hat{\psi}^{-1}$ is $\approx$ 45% larger than RANK

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Quantitatively:

- Cost-push IRF: 11% more cumulative output stabilization than RANK
- Heterogeneity matters *less* than SWF-based analyses suggest

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Broader message: Separating efficiency from redistribution is key to understanding the role of heterogeneity in optimal policy design

- Tools are broadly applicable, beyond monetary policy. E.g., fiscal unions in companion paper.

Thank you!

Appendix

Details: Building Harberger Triangle Approximation

Back

Step 1: Identify the wedges

Step 2: Construct Arrow-Debreu economy with wedges

Step 3: Construct Harberger Triangles

Step 4: Figure out how wedges are affected by policy

Details: Building Harberger Triangle Approximation

Back

Step 1: Identify the wedges

- Four sources of inefficiency $\Rightarrow$ four wedges:
  - **Price markup:** $\log \mu^{p}_{i,t} \equiv \log p_{i,t} - \log(W_t/Z_t)$ *[Calvo prices]*
  - **Wage markup:** $\log \mu^{w}_{u,t} \equiv \log w_{u,t} - \log \tilde{W}_t$ *[Calvo wages]*
  - **Labor wedge:** $\log \mu^{L}_{h,t} \equiv \log\left(\frac{\chi\, u'(l_{h,t})}{u'(c_{h,t})}\right) - \log \frac{\tilde{W}_t}{P_t}$ *[Incidence rule]*
  - **IM wedge:** $\log \mu^{IM}_{h,t} \equiv \log\left(\frac{u'(c_{h,t})}{u'(C_t)}\right) - \log\left(\frac{u'(c_{h,0})}{u'(C_0)}\right)$ *[incomplete mkts]*

Step 2: Construct Arrow-Debreu economy with wedges

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Details: Building Harberger Triangle Approximation

Back

Step 1: Identify the wedges

Step 2: Construct Arrow-Debreu economy with wedges

- Can use these wedges to construct AD economy that replicates original economy
- Households face budget constraint

$$\mathbb{E}_0\left[\sum_t q_t \mu^{IM}_{h,t}[c_{h,t} + \mu^{L}_{h,t}\tilde{W}_t l_{h,t}]\right] \leq I_h$$

- Firms price $p_{i,t} = \mu^{p}_{i,t} W_t / Z_t$ and pay wage $w_{u,t} = \mu^{w}_{u,t}\tilde{W}_t$.

Step 3: Construct Harberger Triangles

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Details: Building Harberger Triangle Approximation

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➢ Generally, second-order approximation around eqbm. with no wedges is:

[Baqaee–Burstein–Guerreiro, 2026]

$$\log A(\mathcal{P}) \approx \log \mathcal{D}^0 + \sum_g \underbrace{\frac{p_g y_g}{\sum_{g'} p_{g'} y_{g'}}}_{\text{Sales Share}} \overbrace{\frac{d \log y_g^{comp} \cdot d \log \mu_g}{2}}^{-\text{Harberger Triangle}}$$

- Aggregate productivity approximated around efficient allocation (no wedges)
  - As in Woodford (2003) for RANK, can also incorporate steady-state/permanent distortions
- Baqaee-Burstein (2026) show that second-order approximation of $\mathcal{D}^0$ is good in stationary Aiyagari model with idiosyncratic risk and borrowing constraints

Step 4: Figure out how wedges are affected by policy

Details: The Second-Order Approximation of Aggregate Productivity

Back

Proposition

To second order, aggregate productivity is given by

$$\log A(\mathcal{P}) \approx \log \mathcal{D}^0 + \tfrac{1-\beta}{2}(\triangleright_{\mathrm{IM}} + \triangleright_P + \triangleright_W + \triangleright_L)$$

- $\triangleright_{\mathrm{IM}} = \mathbb{E}_0 \sum_t \beta^t \int \chi_h \, d\log \mu^{IM}_{h,t} \cdot d\log x_{h,t} \, dh$ ($x_{h,t}$: effective consumption c and l)
- $\triangleright_P = \omega_C \, \mathbb{E}_0 \sum_t \beta^t \int d\log \mu^{p}_{i,t} \cdot \partial \log y_{i,t} \, di$
- $\triangleright_W = \omega_C \, \mathbb{E}_0 \sum_t \beta^t \int d\log \mu^{w}_{u,t} \cdot \partial \log n^{d}_{u,t} \, du$
- $\triangleright_L = (1-\omega_C) \, \mathbb{E}_0 \sum_t \beta^t \int \chi_h \, d\log \mu^{L}_{h,t} \cdot \partial \log l_{h,t} \, dh$

Link Harberger Triangles to Aggregate Outcomes

Details: The Second-Order Approximation of Aggregate Productivity

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Proposition

To second order, aggregate productivity is given by

$$\log A(\mathcal{P}) \approx \log \mathcal{D}^0 - \frac{(1-\beta)\omega_C}{2}\mathbb{E}_0\left\{ \sum_{t=0}^{\infty} \beta^t \left[\left(1+\nu^{-1}\right)(\hat{y}_t - \hat{y}_t^*)^2 + \frac{\varepsilon}{\lambda_p}(\pi_t)^2 + \frac{\psi}{\lambda_w}(\pi_{w,t})^2 \right] \right\}.$$

Term	Content	Source
RANK losses	$\{\hat{y}_t, \pi_t, \pi_{w,t}\}$	Aggregate labor wedge, price and wage markups

Details: The Second-Order Approximation of Aggregate Productivity

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Proposition

To second order, aggregate productivity is given by

$$\log A(\mathcal{P}) \approx \log \mathcal{D}^0 - \frac{(1-\beta)\omega_C}{2}\mathbb{E}_0\left\{\sum_{t=0}^{\infty}\beta^t\left[\left(1+\nu^{-1}\right)(\hat{y}_t-\hat{y}_t^*)^2+\frac{\varepsilon}{\lambda_p}(\pi_t)^2+\frac{\psi}{\lambda_w}(\pi_{w,t})^2\right]\right.$$

$$\left.+Var_{\chi_h}(\gamma_h)\left[\nu^{-1}\sum_{t=0}^{\infty}\beta^t(\hat{y}_t-\hat{y}_t^*)^2+(1-\beta)\left[\sum_t\beta^t(\hat{y}_t-\hat{y}_t^*)\right]^2\right]\right\}.$$

Term	Content	Source
RANK losses	$\{\hat{y}_t, \pi_t, \pi_{w,t}\}$	Aggregate labor wedge, price and wage markups
Cyclical-incidence losses	$\mathrm{Var}_{\chi_h}(\gamma_h)\cdots$	Dispersion in labor wedges

Details: The Second-Order Approximation of Aggregate Productivity

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Proposition

To second order, aggregate productivity is given by

$$\log A(\mathcal{P}) \approx \log \mathcal{D}^0 - \frac{(1-\beta)\omega_C}{2}\mathbb{E}_0\Bigg\{ \sum_{t=0}^{\infty} \beta^t \left[\left(1+\nu^{-1}\right)(\hat{y}_t - \hat{y}_t^*)^2 + \frac{\varepsilon}{\lambda_p}(\pi_t)^2 + \frac{\psi}{\lambda_w}(\pi_{w,t})^2 \right]$$
$$+ Var_{\chi_h}(\gamma_h)\left[\nu^{-1}\sum_{t=0}^{\infty}\beta^t(\hat{y}_t - \hat{y}_t^*)^2 + (1-\beta)\left[\sum_t \beta^t(\hat{y}_t - \hat{y}_t^*)\right]^2\right]$$
$$+ (1-\beta)^{-1}\mathbb{E}_{\chi_h}\left[Var_{\beta,\pi}\left(d\log\left(\frac{c_{h,t}}{Y_t}\right)\right)\right] - \sum_{t=0}^{\infty}\beta^t Cov_{\chi_h}\left(d\log\left(\frac{c_{h,t}}{\bar{c}_h}\right), \gamma_h\right)(\hat{y}_t - \hat{y}_t^*)\Bigg\}.$$

Term	Content	Source
RANK losses	$\{\hat{y}_t, \pi_t, \pi_{w,t}\}$	Aggregate labor wedge, price and wage markups
Cyclical-incidence losses	$\mathrm{Var}_{\chi_h}(\gamma_h)\cdots$	Dispersion in labor wedges
IM losses	$\mathbb{E}_{\chi_h}\left[Var_{\beta,\pi}\left(d\log\left(\frac{c_{h,t}}{Y_t}\right)\right)\right]$, $\mathrm{Cov}_{\chi_h}\left(d\log\left(\frac{c_{h,t}}{\bar{c}_h}\right), \gamma_h\right)$	Incomplete markets and their interaction with incidence

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Proposition

To second order, aggregate productivity is given by

$$\log A(\mathcal{P}) \approx \log \mathcal{D}^0 - \frac{(1-\beta)\omega_C}{2}\mathbb{E}_0\left\{ \sum_{t=0}^{\infty}\beta^t \left[\left(1+\nu^{-1}\right)(\hat{y}_t - \hat{y}_t^*)^2 + \frac{\varepsilon}{\lambda_p}(\pi_t)^2 + \frac{\psi}{\lambda_w}(\pi_{w,t})^2 \right] \right.$$
$$+ Var_{\chi_h}(\gamma_h)\left[\nu^{-1}\sum_{t=0}^{\infty}\beta^t(\hat{y}_t - \hat{y}_t^*)^2 + (1-\beta)\left[\sum_t \beta^t(\hat{y}_t - \hat{y}_t^*)\right]^2\right]$$
$$\left. +(1-\beta)^{-1}\mathbb{E}_{\chi_h}\left[Var_{\beta,\pi}\left(d\log\left(\frac{C_{h,t}}{Y_t}\right)\right)\right] - \sum_{t=0}^{\infty}\beta^t Cov_{\chi_h}\left(d\log\left(\frac{C_{h,t}}{\overline{C}_h}\right),\gamma_h\right)(\hat{y}_t - \hat{y}_t^*)\right\}.$$

Proposition (Baqaee–Burstein–Guerreiro, 2026)

Let $\mathcal{P}^*$ be the policy that maximizes this approximation of $A(\mathcal{P})$, subject to the equilibrium conditions. Then, $\mathcal{P}^*$ is a ***first-order approximation of the optimal policy, around a no shocks and zero inflation.***

A1. Model: full household problem

Household h maximizes:

$$(1-\beta)\,\mathbb{E}_0 \sum_{t=0}^{\infty} \beta^t \left[\frac{1}{1+\chi} \log c_{h,t} + \frac{\chi}{1+\chi} \log l_{h,t} \right]$$

Budget constraint:

$$P_t c_{h,t} + \frac{a_{h,t}}{(1+i_t)(1+\delta_t)} + \sum_k q_{k,t} \tilde{a}_{k,h,t} = y_{h,t} + z_{h,t}\Xi_t + a_{h,t-1} + \sum_k R_{k,t} \tilde{a}_{k,h,t-1} - \tilde{t}_{h,t}$$

Portfolio constraint: $\Omega(a_{h,t}, \{\tilde{a}_{k,h,t}\}_k) \geq 0$

Idiosyncratic risk: $z_{h,t}$ follows a Markov process with stationary distribution $\pi(z)$

Incidence rule: $n^s_{h,u,t} = \Gamma(1-L_t;\, \zeta_{h,t}) \int n_{i,u,t}\, di, \quad \gamma_h \equiv \dfrac{\partial \log \Gamma}{\partial \log(1-L_t)}$

Transfers: time-0 transfers $T_{h,0}$ are budget-neutral, $\int T_{h,0}\, dh = 0$, and are used to implement compensation under the Efficiency Mandate

A2. Aggregate productivity: formal definition

Definition [Baqaee-Burstein, 2025]

Given a status-quo equilibrium under policy $\mathcal{P}^0$, aggregate productivity under policy $\mathcal{P}$ is:

$$\mathcal{A}(\mathcal{P}) \ = \ \max\left\{H > 0 : \exists\, \mathbf{x} \in \mathcal{X}(1/H; \mathcal{P}) \text{ s.t. } U_h(\mathbf{x}_h) \geq U_h(\mathbf{x}_h^0)\ \forall\, h\right\}$$

where $\mathcal{X}(1/H; \mathcal{P})$ = feasible allocations under policy $\mathcal{P}$ with factor endowments scaled by $1/H$, and time-0 lump-sum transfers allowed

Properties:

- Invariant to lump-sum redistribution
- Pareto improvements are always $\mathcal{A}$-improvements
- Coincides with TFP in representative-agent models
- $\mathcal{A}(\mathcal{P}) = \mathcal{A}(\mathcal{P}')$ iff there is no Kaldor-Hicks improvement from $\mathcal{P}'$ to $\mathcal{P}$

Distance to the frontier:

$$\mathcal{D} \equiv \max\left\{H > 0 : \exists\, \mathbf{x} \in \mathcal{X}^*(1/H) \text{ with } U(\mathbf{x}_h) \geq U(\mathbf{x}_h^0)\ \forall h\right\}$$

Frontier aggregates:

$$Y_t^* = C_t^* = \frac{Z_t}{1+\chi}, \qquad L_t^* = \frac{\chi}{1+\chi}$$

A3. Derivation of Harberger triangles

Lemma: aggregate productivity as Harberger triangles

$$\log \mathcal{A}(\mathcal{P}) \approx \log \mathcal{D} + \frac{1}{2}\left\{\Delta^{IM} + \Delta^{p} + \Delta^{w} + \Delta^{L}\right\}$$

with

$$\triangleright_{\mathrm{IM}} \equiv \mathbb{E}_0 \sum_t \beta^t \int \chi_h \, d\log \mu^{IM}_{h,t} \cdot d\log x_{h,t} \, dh$$

$$\triangleright_{P} \equiv \omega_C \, \mathbb{E}_0 \sum_t \beta^t \int d\log \mu^{p}_{i,t} \cdot \partial \log y_{i,t} \, di$$

$$\triangleright_{W} \equiv \omega_C \, \mathbb{E}_0 \sum_t \beta^t \int d\log \mu^{w}_{u,t} \cdot \partial \log n^{d}_{u,t} \, du$$

$$\triangleright_{L} \equiv (1-\omega_C) \, \mathbb{E}_0 \sum_t \beta^t \int \chi_h \, d\log \mu^{L}_{h,t} \cdot \partial \log l_{h,t} \, dh$$

Each term is a generalized Harberger triangle: a wedge times the associated general-equilibrium quantity distortion

A4. Proof sketch: IM losses orthogonal to MP (Prop. 4)

In sticky-price HANK:

The incomplete-market loss term is:

$$-\omega_C \mathbb{E}_0 \sum_{t=0}^{\infty} \beta^t \operatorname{Cov}_{\chi_h}\left(d\log\left(\frac{c_{h,t}}{c_{h,0}}\right), d\log\left(\frac{c_{h,t}}{\overline{c}_h}\right)\right)$$

Proposition 4: around the efficient allocation, this term is orthogonal to aggregate conditions

Implication:

- ➢ Incomplete markets still lower aggregate productivity
- ➢ But monetary policy cannot affect those losses at first order
- ➢ So the optimal sticky-price HANK policy coincides with sticky-price RANK

A5. Efficiency vs. SWF-based HANK analyses

Why do SWF-based analyses find larger departures from RANK?

SWF approach:

- Welfare $= \sum_h \omega_h U_h$, weights ω_h are *normative*
- Redistribution directly enters welfare
- Monetary policy can look attractive because it changes who bears fluctuations
- Result: optimal policy can depart materially from RANK

Efficiency Mandate:

- Aggregate productivity asks how much surplus a policy creates
- Redistribution is separated from the objective by time-0 lump-sum compensation
- The paper's departures from RANK come from efficiency effects, not redistributive motives

The gap between SWF and EM is precisely the redistributive component of optimal MP

We use sequence-space Jacobian (SSJ) methods [Auclert et al., 2021, 2024]

Key ingredients:

1. Solve for household decision rules in steady state
2. Compute fake-news matrices (heterogeneous impulse responses to news shocks)
3. Compose Jacobians across blocks to get general equilibrium responses

Application to Efficiency Mandate:

- ➢ Represent aggregate demand as a functional of expected fundamentals
- ➢ Compose block Jacobians to characterize equilibrium responses
- ➢ Use those linear responses inside the quadratic approximation of aggregate productivity

Advantage: Handles rich asset-market heterogeneity without curse of dimensionality

A7. Quantitative appendix

Three quantitative objects pin down the policy departure from RANK

Object	Value	Role
$\text{Var}_{\chi_h}(\gamma_h)$	0.78	Raises the output-stabilization weight
$\hat{\psi}$	2.76	Modified RANK tradeoff coefficient
ζ_{IM}	0.04	Short-run incomplete-markets correction

Expected consumption and covariance dynamics:

- $\mathbb{E}[d \log c_t \mid z_0]$ declines with initial productivity
- $Cov_{\chi_h}(d \log c_{h,t}, \gamma_h)$ is positive initially and converges to zero
- Hence the optimal HANK policy features a small initial expansion that vanishes over time

Takeaway: quantitatively, most of the HANK-RANK gap comes from the higher effective output weight, not from a large IM correction

Optimal Simple Rules

Simple rules: restrict policy to time-invariant linear functions of current shocks [Woodford, 1999]

$$\hat{y}_t = \phi_y + \phi_{y,\delta}\delta_t + \phi_{y,z}\hat{z}_t + \phi_{y,u}u_{w,t}, \qquad \pi_{w,t} = \phi_\pi + \phi_{\pi,\delta}\delta_t + \phi_{\pi,z}\hat{z}_t + \phi_{\pi,u}u_{w,t}$$

Result 1: Sticky-price HANK $=$ RANK

Result 2: Sticky-wage incomplete markets drop out

- In the sticky-wage HANK model, the IM covariance term does *not* affect the ex-ante optimal simple rule
- Simple rules are "as if RANK" but with a **modified elasticity** $\tilde{\psi} < \psi$

Bottom line: only *cyclical income risk* ($Var_{\chi_h}(\gamma_h) > 0$) shifts the rule relative to RANK

A9. Optimal Simple Rules: Cost-Push Shocks

Sticky-wage simple rules take the form:

$$\hat{y}_t = \phi_y + \phi_{y,\delta}\delta_t + \phi_{y,z}\hat{y}_t^* + \phi_{y,u}u_{w,t}, \qquad \pi_{w,t} = \phi_\pi + \phi_{\pi,\delta}\delta_t + \phi_{\pi,z}\hat{y}_t^* + \phi_{\pi,u}u_{w,t}$$

- Demand shock: zero inflation and output gap $=$ RANK
- Productivity shock: zero inflation and output gap $=$ RANK
- Cost-push shocks: HANK allows more inflation and less output volatility than RANK

Cost-push coefficients:

$$\phi_{y,u} = -\frac{\tilde{\psi}}{\kappa_w\tilde{\psi} + (1-\beta\rho_u)^2}, \qquad \phi_{\pi,u} = \frac{1-\beta\rho_u}{\kappa_w\tilde{\psi} + (1-\beta\rho_u)^2}$$

- with $\tilde{\psi} < \psi$, so the HANK simple rule is “RANK-like” but more weight output

A10. Optimal Simple Rules: Cost-Push Shocks

Cost-push coefficients:

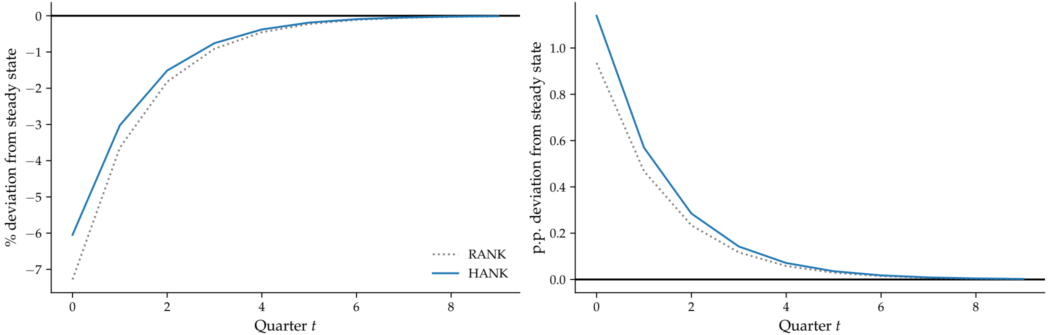
$$\phi_{y,u} = -\frac{\tilde{\psi}}{\kappa_w \tilde{\psi} + (1-\beta\rho_u)^2}, \qquad \phi_{\pi,u} = \frac{1-\beta\rho_u}{\kappa_w \tilde{\psi} + (1-\beta\rho_u)^2}$$

Calibrated values (baseline, $\rho_u = 0.5$):

	RANK	**HANK (Eff. Mandate)**
Output-gap coefficient $\lvert\phi_{y,u}\rvert$	baseline	-17%
Wage-inflation coefficient $\phi_{\pi,u}$	baseline	$+22\%$

- ➢ HANK rule contracts output 17% *less* and raises wage inflation 22% *more* than RANK
- ➢ Same qualitative lesson as the full Ramsey problem

A11. Optimal Simple Rules: Cost-Push Shocks



Main message: relative to full Ramsey, simple rules produce more inflation and a sharper output contraction in both models; but the **qualitative message is preserved**

A12. Related literature

Optimal monetary policy in HANK: [Bilbiie, 2008; Acharya-Dogra, 2020; Le Grand-Ragot, 2022; Challe, 2020; Debortoli-Galí, 2017]

Efficiency criteria and GE welfare: [Baqaee-Burstein, 2025a, 2025b; Harberger, 1964; Dixit-Norman, 1986]

HANK models: [Kaplan-Moll-Violante, 2018; Auclert, 2019; McKay-Nakamura-Steinsson, 2016; Bilbiie, 2019]

Sequence-space methods: [Auclert-Bardóczy-Rognlie-Straub, 2021; Auclert-Bardóczy-Rognlie-Straub, 2024]

Labor income risk and cyclicality: [Floden-Lindé, 2001; Storesletten-Telmer-Yaron, 2004; Guvenen-Ozkan-Song, 2014]

Separation of efficiency and redistribution: [Diamond-Mirrlees, 1971; Atkinson-Stiglitz, 1976; Werning, 2007]

The Second-Order Approximation of Aggregate Productivity

Back

Proposition

To second order, aggregate productivity is given by

$$\log A(\mathcal{P}) \approx \log \mathcal{D}^0 + \tfrac{1-\beta}{2}(\triangleright_{\mathrm{IM}} + \triangleright_P + \triangleright_W + \triangleright_L)$$

- $\triangleright_{\mathrm{IM}} = \mathbb{E}_0 \sum_t \beta^t \int \chi_h \, d\log \mu^{IM}_{h,t} \cdot d\log x_{h,t} \, dh$ ($x_{h,t}$: effective consumption c and l)
- $\triangleright_P = \omega_C \, \mathbb{E}_0 \sum_t \beta^t \int d\log \mu^{p}_{i,t} \cdot \partial \log y_{i,t} \, di$
- $\triangleright_W = \omega_C \, \mathbb{E}_0 \sum_t \beta^t \int d\log \mu^{w}_{u,t} \cdot \partial \log n^{d}_{u,t} \, du$
- $\triangleright_L = (1-\omega_C) \, \mathbb{E}_0 \sum_t \beta^t \int \chi_h \, d\log \mu^{L}_{h,t} \cdot \partial \log l_{h,t} \, dh$

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$$\log A(\mathcal{P}) \approx \log \mathcal{D}^0 + \tfrac{1-\beta}{2}(\triangleright_{\mathrm{IM}} + \triangleright_P + \triangleright_W + \triangleright_L)$$

Note that

$$\partial \log y_{i,t} = -\varepsilon \left(d \log \mu^p_{i,t} - \int d \log \mu^p_{i',t} di' \right) + (\hat{y}_t - \hat{y}^*_t)$$

$$\Rightarrow \int_0^1 d \log \mu^p_{i,t} \cdot \partial \log y_{i,t} di = -\varepsilon \underbrace{Var_i \left(d \log \mu^p_{i,t} \right)}_{\to \{\pi_s\}_{s=0}^t} + (\hat{y}_t - \hat{y}^*_t) \underbrace{E_i[d \log \mu^p_{i,t}]}_{\text{Avg. Labor Wedge}}$$

and similarly for wages.

$$\triangleright_P = -\omega_C \mathbb{E}_0 \sum_t \beta^t \tfrac{\varepsilon}{\lambda_p} \pi_t^2 + \omega_C \mathbb{E}_0 \sum_t \beta^t E_i[d \log \mu^p_{i,t}] (\hat{y}_t - \hat{y}^*_t)$$

$$\triangleright_W = -\omega_C \mathbb{E}_0 \sum_t \beta^t \tfrac{\psi}{\lambda_w} \pi_{w,t}^2 + \omega_C \mathbb{E}_0 \sum_t \beta^t E_u[d \log \mu^w_{u,t}] (\hat{y}_t - \hat{y}^*_t)$$

The Second-Order Approximation of Aggregate Productivity

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To second order, aggregate productivity is given by

$$\log A(\mathcal{P}) \approx \log \mathcal{D}^0 + \tfrac{1-\beta}{2}(\triangleright_{\text{IM}} + \triangleright_L)$$
$$-\frac{1-\beta}{2}\omega_C \mathbb{E}_0 \sum_t \beta^t \left[\tfrac{\varepsilon}{\lambda_p}\pi_t^2 + \tfrac{\psi}{\lambda_w}\pi_{w,t}^2 + (E_i[d\log\mu_{i,t}^p] + E_u[d\log\mu_{u,t}^w])(\hat{y}_t - \hat{y}_t^*)\right]$$

Note that

$$\partial \log l_{h,t} = (1+\gamma_h)\partial \log L_t = -(1+\gamma_h)(\hat{y}_t - \hat{y}_t^*)$$

so that

$$\Delta^L = -\omega_C \mathbb{E}_0 \sum_t \beta^t \left\{E_{\chi_h}[d\log\mu_{h,t}^L] + Cov(d\log\mu_{h,t}^L, \gamma_h)\right\}(\hat{y}_t - \hat{y}_t^*)$$

Finally, replacing $\mu_{h,t}^L$ using its definition and the solution to the household problem, we obtain:

$$\Delta^L = -\omega_C \cdot \mathbb{E}_0 \sum_t \beta^t \Bigg[\left[\left(1+\nu^{-1}\right)\partial(\hat{y}_t - \hat{y}_t^*) + E_i\left[d\log\mu_{i,t}\right] + E_u\left[d\log\mu_{u,t}\right]\right] \cdot \partial(\hat{y}_t - \hat{y}_t^*)$$
$$+\nu^{-1} Var_{\chi_h}(\gamma_h)\left(\partial(\hat{y}_t - \hat{y}_t^*)\right)^2\Bigg] - \omega_C \cdot Var_{\chi_h}[\gamma_h] \cdot (1-\beta)\,\mathbb{E}_0\left(\sum_t \beta^t \partial(\hat{y}_t - \hat{y}_t^*)\right)^2.$$

The Second-Order Approximation of Aggregate Productivity

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Proposition

To second order, aggregate productivity is given by

$$\log A(\mathcal{P}) \approx \log \mathcal{D}^0 + \frac{1-\beta}{2} \triangleright_{\text{IM}} - \frac{1-\beta}{2} \omega_C \mathbb{E}_0 \sum_t \beta^t \left[\frac{\varepsilon}{\lambda_p} \pi_t^2 + \frac{\psi}{\lambda_w} \pi_{w,t}^2 + (1+\nu^{-1}) (\hat{y}_t - \hat{y}_t^*)^2 \right]$$

$$- \frac{1-\beta}{2} \omega_C \mathbb{E}_0 \sum_t \beta^t \left[\nu^{-1} Var_{\chi_h}(\gamma_h)(\hat{y}_t - \hat{y}_t^*)^2 \right] - \frac{1-\beta}{2} \omega_C Var_{\chi_h}(\gamma_h)(1-\beta) \mathbb{E}_0 \left[\left(\sum_t \beta^t (\hat{y}_t - \hat{y}_t^*) \right)^2 \right]$$

The incomplete markets triangles are more complex, but can be written as

$$\Delta^{IM} = -\omega_C \mathbb{E}_0 (1-\beta)^{-1} \mathbb{E}_{\chi_h} \left[Var_{\beta,\pi} \left(d \log \left(\frac{c_{h,t}}{Y_t} \right) \right) \right]$$

$$+ \omega_C \cdot \mathbb{E}_0 \sum_{t=0}^{\infty} \beta^t Cov_{\chi_h} \left(d \log \left(\frac{c_{h,t}}{\bar{c}_h} \right), \gamma_h \right) \partial (\hat{y}_t - \hat{y}_t^*).$$

The Second-Order Approximation of Aggregate Productivity

▸ Back

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To second order, aggregate productivity is given by

$$\log A(\mathcal{P}) \approx \log \mathcal{D}^0 - \frac{(1-\beta)\omega_C}{2}\mathbb{E}_0\left\{\sum_{t=0}^{\infty}\beta^t\left\{\left(1+\nu^{-1}\right)(\hat{y}_t-\hat{y}_t^*)^2+\frac{\varepsilon}{\lambda_p}(\pi_t)^2+\frac{\psi}{\lambda_w}(\pi_{w,t})^2\right\}\right.$$
$$+\nu^{-1}Var_{\chi_h}(\gamma_h)\sum_{t=0}^{\infty}\beta^t(\hat{y}_t-\hat{y}_t^*)^2+(1-\beta)Var_{\chi_h}[\gamma_h]\left[\sum_t\beta^t(\hat{y}_t-\hat{y}_t^*)\right]^2$$
$$\left.+(1-\beta)^{-1}\mathbb{E}_{\chi_h}\left[Var_{\beta,\pi}\left(d\log\left(\frac{c_{h,t}}{Y_t}\right)\right)\right]-\sum_{t=0}^{\infty}\beta^t Cov_{\chi_h}\left(d\log\left(\frac{c_{h,t}}{\bar{c}_h}\right),\gamma_h\right)(\hat{y}_t-\hat{y}_t^*)\right\}.$$

Term	**Content**		**Source**
RANK losses	$(1+\nu^{-1})\tilde{y}_t^2+\frac{\varepsilon}{\lambda_p}\pi_t^2+\frac{\psi}{\lambda_w}\pi_{w,t}^2$		Aggregate labor wedge, price and wage markups
Cyclical-incidence losses	$\nu^{-1}\,\mathrm{Var}_{\chi_h}(\gamma_h)\sum_t\beta^t\tilde{y}_t^2+(1-\beta)\,\mathrm{Var}_{\chi_h}(\gamma_h)\left[\sum_t\beta^t\tilde{y}_t\right]^2$		Dispersion in labor wedges
IM losses	$\sum_t\beta^t\mathbb{E}_{\chi_h}\left[Var_{\beta,\pi}\left(d\log\left(\frac{c_{h,t}}{Y_t}\right)\right)\right]$	$-$	Incomplete markets and their interaction with incidence
	$\sum_t\beta^t\,\mathrm{Cov}_{\chi_h}\left(d\log\left(\frac{c_{h,t}}{\bar{c}_h}\right),\gamma_h\right)\tilde{y}_t$		

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To second order, aggregate productivity is given by

$$\log A(\mathcal{P}) \approx \log \mathcal{D}^0 - \frac{(1-\beta)\omega_C}{2}\mathbb{E}_0\left\{\sum_{t=0}^{\infty}\beta^t\left\{\left(1+\nu^{-1}\right)(\hat{y}_t-\hat{y}_t^*)^2+\frac{\varepsilon}{\lambda_p}(\pi_t)^2+\frac{\psi}{\lambda_w}(\pi_{w,t})^2\right\}\right.$$

$$+\nu^{-1}Var_{\chi_h}(\gamma_h)\sum_{t=0}^{\infty}\beta^t(\hat{y}_t-\hat{y}_t^*)^2+(1-\beta)\,Var_{\chi_h}[\gamma_h]\left[\sum_t\beta^t(\hat{y}_t-\hat{y}_t^*)\right]^2$$

$$\left.+(1-\beta)^{-1}\mathbb{E}_{\chi_h}\left[Var_{\beta,\pi}\left(d\log\left(\frac{c_{h,t}}{Y_t}\right)\right)\right]-\sum_{t=0}^{\infty}\beta^t Cov_{\chi_h}\left(d\log\left(\frac{c_{h,t}}{\bar{c}_h}\right),\gamma_h\right)(\hat{y}_t-\hat{y}_t^*)\right\}.$$

Proposition (Baqaee–Burstein–Guerreiro, 2026)

Let $\mathcal{P}^*$ be the policy that maximizes the quadratic-approximation of aggregate productivity, subject to the equilibrium conditions. Then, $\mathcal{P}^*$ is a first-order approximation of the optimal policy in the non-linear problem.

The Efficiency Criterion - A Visual Illustration

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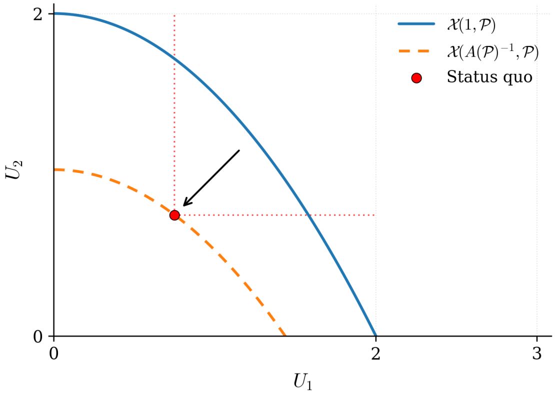

$\mathcal{X}(1; \mathcal{P})$ generates a new frontier – given compensatory transfers

Agg Productivity = how much can contract factor productivity (and so frontier), while keeping everyone at least as well off as under status quo

Status quo is part of the theory and is disciplined by data

Policy problem: look for a policy that generates consensus – feasible Pareto improvements

Theory does not take a stance on what point on new frontier to choose

The Efficiency Criterion and the Scitovsky Paradox

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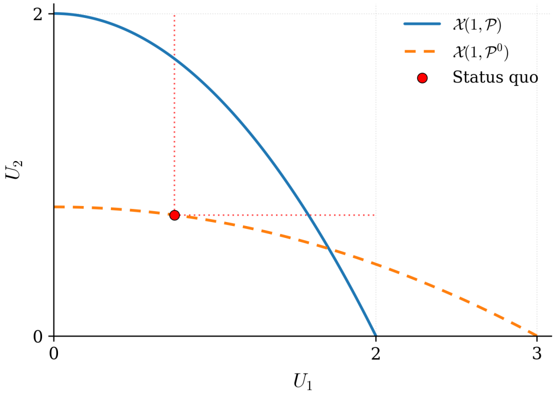

Scitovsky paradox: Kaldor-Hicks criterion can generate reversals

This does not happen here for two reasons:

- Status quo is part of the theory (the data) and we do not change it – changing status quo is like changing preferences
- We compare status quo to new frontier, not a point. There are points on that frontier that Pareto dominate the status quo – if ultimately those were chosen, then no reversal...

The Efficiency Criterion: Key Features

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1. **Surplus/Cost-benefit focus**: separates "is there surplus?" from "who gets surplus?" [~~redistributive concerns~~]
2. **Potential-consensus property**: can generate Pareto improvements, process/status-quo matters
   - New allocations reached by consensus, not by coercion [Lockean Pareto principle]
   - Not subject to Scitovsky paradox

   More
3. **Ordinal invariance**: no interpersonal utility comparisons, not dependent on cardinal utility
   - No explicit aggregation of utils (SWF), no Pareto weights, no representative-agent fiction required
4. **TFP Equivalent**: measured in factor productivity (interpretable units), preserves Hulten
   - Measures misallocation as resource waste, not as a change in spending
5. **GE consistency**: accounts for GE feedbacks from policy and transfers
6. **Global criterion**: also applies to large changes, not just marginal ones
7. **Empirical implementation**: characterized using only observables (supply and demand curves)
8. **Generalizations**: (1) can incorporate altruism/people's equity concerns in preferences, (2) can allow for costly redistribution
9. **Nesting and fixes**: nests familiar measures when "well defined", but also avoids pathologies
   - (1) No Boadway/Kaldor-Hicks paradox, (2) avoids real GDP pathologies with heterogeneous preferences, (3) robust to including general market distortions unlike real GDP/KH
10. **Tractable**: Baqaee-Burstein (2025) develop tools to analyze this criterion in general distorted economies with heterogeneous agents