Understanding the Gains from Wage Flexibility: The Exchange Rate Connection

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Conventional wisdom (I):

"Wage flexibility is a good thing"
Wage Flexibility and Employment Stability: The Classical View

- a. Wage flexibility
- b. Wage rigidity
Gains from Wage Flexibility: The Conventional Wisdom

- Conventional wisdom (I):
  
  "Wage flexibility is a good thing"

- Conventional wisdom (II):

  "Wage flexibility is a good thing. More so in a currency union"
Gains from Wage Flexibility: The Conventional Wisdom

- Conventional wisdom (I):

  "Wage flexibility is a good thing"

- Conventional wisdom (II):

  "Wage flexibility is a good thing. More so in a currency union"

- Recurrent calls for wage moderation and reforms to enhance wage flexibility, aimed at troubled euro area countries
Closed economy model with staggered price and wage setting

Taylor-type interest rate rule: \( i_t = \rho + \phi_{\pi} \pi_t + \phi_y y_t \)

Indirect effect of wages on employment:

\[
\downarrow w \Rightarrow \downarrow \pi \Rightarrow \downarrow i \Rightarrow \downarrow r \Rightarrow \uparrow y \Rightarrow \uparrow n
\]

\( \Rightarrow \) key role for endogenous monetary policy response

**Main finding**: Increased wage flexibility may be welfare-reducing if \( \phi_{\pi} \) is small

- limited effectiveness at stabilizing employment
- costly "side effects" (increased volatility in wage and price inflation)
Gains from Wage Flexibility Revisited: The Closed Economy Case (Galí, JEEA 2013)

- Closed economy model with staggered price and wage setting
- Taylor-type interest rate rule: \( i_t = \rho + \phi_\pi \pi_t + \phi_y y_t \)
- Indirect effect of wages on employment:

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- **Main finding**: Increased wage flexibility may be welfare-reducing if \( \phi_\pi \) is small
  - limited effectiveness at stabilizing employment
  - costly "side effects" (increased volatility in wage and price inflation)

- **Caveat**: closed economy, no room for "competitiveness channel"
Gains from Wage Flexibility Revisited: The Open Economy

- **Framework:** small open economy New Keynesian model
  
  GM 2005 + wage rigidities

- Transmission of wage changes to employment:
  
  - "endogenous policy channel"
  - "competitiveness channel"

- **Questions:**
  
  - Is increased wage flexibility always desirable?
  - More so in a currency union?
  - What is the role of the exchange rate policy/regime?

- **The exchange rate connection:** with a more rigid exchange rate, wage flexibility is...

  ⇒ more valuable to bring about warranted changes in terms of trade
  ⇒ less effective due to muted monetary policy response
Basic Framework

- Domestic households

\[ E_0 \sum_{t=0}^{\infty} \beta^t U(C_t, N_t; X_t) \]

\[ C_t \equiv \left( (1 - \nu) \frac{1}{\eta} C_{H,t}^{1-\frac{1}{\eta}} + \nu \frac{1}{\eta} C_{F,t}^{1-\frac{1}{\eta}} \right)^{\eta-1} \]

\[ C_{H,t} \equiv \left( \int_0^1 C_{H,t}(j) \frac{e^j - 1}{e^j} dj \right)^{\frac{e^j}{e^j - 1}} \]

\[ U(C_t, N_t; X_t) = \left( \log C_t - \frac{1}{1 + \varphi} N_t^{1+\varphi} \right) X_t \]

where \( x_t \equiv \log X_t \sim AR(1) \) ("demand shock")

**Assumption:** access to (complete) international financial markets
Basic Framework

- Domestic firms
  \[ Y_t = A_t N_t^{1-\alpha} \]
  where \( a_t \equiv \log A_t \sim AR(1) \) ("technology shock")
- Monopolistic competition in goods and labor markets
- Staggered price and wage setting à la Calvo
- Producer currency pricing (full pass-through)
- Monetary policy
  \[ i_t = \phi_\pi \pi_{H,t} + \frac{\phi_e}{1 - \phi_e} e_t \]
  Limiting case: as \( \phi_e \to 1 \), exchange rate peg \( (e_t = 0) \)
The Impact of Labor Costs on Employment: The Role of Exchange Rate Policy

- Exogenous payroll tax process

\[ \tau_t = \rho \tau_{t-1} + \varepsilon_t \]

- Baseline calibration:
  - openness: \( \nu = 0.4 \)
  - elasticity of substitution: \( \eta = 1 \)
  - nominal rigidities: \( \theta_p = \theta_w = 0.75 \)
  - inflation coefficient: \( \phi_\pi = 1.5 \)

- Response of employment to a 1% payroll tax cut, as a function of \( \phi_e \)
Dynamic Response of Employment to a Payroll Tax Cut
The Impact of Labor Costs on Employment: Dissecting the Mechanism

- Labor demand
  \[ n_t = \frac{1}{1 - \alpha} (y_t - a_t) \]

- Equilibrium output
  \[ y_t = (1 - \nu)c_t + \eta\nu(2 - \nu)s_t \]

- Equilibrium consumption:
  \[ c_t = x_t - (1 - \nu)E_t \left\{ \sum_{k=0}^{\infty} \left( i_{t+k} - E_t \{ \pi_{H,t+1+k} \} \right) \right\} \]

- Equilibrium terms of trade:
  \[ s_t = -E_t \left\{ \sum_{k=0}^{\infty} \left( i_{t+k} - E_t \{ \pi_{H,t+1+k} \} \right) \right\} \]

⇒ key role for monetary policy response, shaped by exchange rate policy
Dynamic Responses to a Payroll Tax Cut: Interest Rates

Real interest rate

Nominal interest rate
Welfare Gains from Increased Wage Flexibility: The Exchange Rate Connection

- Interaction between:
  - wage stickiness: $\theta_w \in [0, 1]$
  - exchange rate stability: $\phi_e \in [0, 1]$

- Welfare loss in the unit-elasticity case ($\eta = 1$)

  $$IL \sim (1 + \phi) \var(n_t) + \left(\frac{\epsilon_p}{\lambda_p (1 - \alpha)}\right) \var(\pi^p_t) + \left(\frac{\epsilon_w}{\lambda_w}\right) \var(\pi^w_t)$$

- Conditional analysis:
  (i) demand shocks
  (ii) technology shocks
Wage Flexibility, Exchange Rate Policy and Welfare: Demand Shocks
Wage Flexibility, Exchange Rate Policy and Welfare: Demand Shocks

Welfare Loss Components

employment gap

price inflation

wage inflation
Welfare Impact Regions: Demand Shocks

\[ \frac{\partial \text{Welfare}}{\partial \theta_w} > 0 \]

\[ \frac{\partial \text{Welfare}}{\partial \theta_w} < 0 \]
Wage Flexibility, Exchange Rate Policy and Welfare: Technology Shocks
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Welfare Loss Components

employment gap

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Welfare Impact Regions: Technology Shocks

\[
\frac{\partial \text{Welfare}}{\partial \theta_w} > 0 \quad \text{and} \quad \frac{\partial \text{Welfare}}{\partial \theta_w} < 0
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Welfare Gains from Increased Wage Flexibility: The Exchange Rate Connection

- Interaction between:
  - wage stickiness: $\theta_w \in [0, 1]$
  - exchange rate stability: $\phi_e \in [0, 1]$
- Welfare loss in the unit-elasticity case ($\eta = 1$)
  \[
  \mathbb{L} \sim (1 + \phi) \text{var}(\tilde{n}_t) + \left(\frac{\epsilon_p}{\lambda_p(1 - \alpha)}\right) \text{var}(\pi^p_t) + \left(\frac{\epsilon_w}{\lambda_w}\right) \text{var}(\pi^w_t)
  \]
- Conditional analysis:
  (i) demand shocks
  (ii) technology shocks
- Robustness to alternative calibrations:
  - trade elasticity, $\eta$
  - openness, $\nu$
  - price stickiness, $\theta_p$
Wage Flexibility, Exchange Rate Policy and Welfare: Demand Shocks
The Case of a Non-Unitary Elasticity of Substitution

$\eta = 1/2$

Low Elasticity

$\eta = 2$

High Elasticity
Figure 5.a Welfare Impact of Enhanced Wage Flexibility: Demand Shocks

*The Role of Openness under a High Trade Elasticity ($\eta=2$)*

![Graph showing the welfare impact of enhanced wage flexibility with demand shocks, under high trade elasticity ($\eta=2$). The graph plots $\theta^*_V$ against $\phi_e$ for different values of $\nu$.](image)
Figure 5.b Welfare Impact of Enhanced Wage Flexibility: Demand Shocks

*The Role of Openness under a Low Trade Elasticity (η=0.5)*
Welfare Impact of Enhanced Wage Flexibility: Demand Shocks

The Role of Price Stickiness
Wage and Price Flexibility, Exchange Rate Policy and Welfare: Demand Shocks
Concluding remarks

• Conventional wisdom

"Wage flexibility is a good thing. More so in a currency union"
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- Conventional wisdom

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- Finding #1: Effectiveness of labor cost adjustments on employment inversely related to exchange rate "rigidity"

  ⇒ least effective in a currency union
Concluding remarks

- Conventional wisdom

  "Wage flexibility is a good thing. More so in a currency union"

- Finding #1: Effectiveness of labor cost adjustments on employment inversely related to exchange rate "rigidity"
  \[ \Rightarrow \text{least effective in a currency union} \]

- Finding #2: Increased wage flexibility often welfare-reducing.
  \[ \Rightarrow \text{more likely so in a currency union}. \]
Welfare Impact of Enhanced Wage Flexibility: Technology Shocks

*The Role of Price Stickiness*
Wage and Price Flexibility, Exchange Rate Policy and Welfare: Technology Shocks
Figure 19
Wage Flexibility, Monetary Policy and Welfare

*Technology Shocks*
Figure 20
Decomposition of Welfare Losses

Technology Shocks

(i) Employment

(ii) Price Inflation

(iii) Wage Inflation