Understanding the Gains from Wage Flexibility: The Exchange Rate Connection

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Gains from Wage Flexibility: The Conventional Wisdom

- Conventional wisdom (I):

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

The diagram illustrates the classical view of wage flexibility and employment stability. The horizontal axis represents employment, while the vertical axis represents wage. The labor supply curve is depicted as a downward-sloping line, while the labor demand curve is shown as an upward-sloping line. The equilibrium point, labeled $E_0$, is where the two curves intersect. A shift in demand to the right, from $n_0$ to $n_1$, implies an increase in employment from $w_0$ to $w_1$, demonstrating the classical view of wage flexibility and employment stability.
Wage Flexibility and Employment Stability: The Classical View

Wage

Labor demand

Labor supply

$w_0$

$E_0$

$E_1$

$n_0$

$n_1$
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"
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
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:

$$\downarrow w \Rightarrow \downarrow \pi \Rightarrow \downarrow i \Rightarrow \downarrow r \Rightarrow \uparrow y \Rightarrow \uparrow n$$

$\Rightarrow$ 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)
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)

**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

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

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

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

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

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

\[ i_t = \phi_{\pi_H,t} + \frac{\phi_e}{1 - \phi_e} e_t \]

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

$$\tau_t = \rho_\tau \tau_{t-1} + \varepsilon^\tau_t$$

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

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

⇒ key role for monetary policy response, shaped by exchange rate policy
Figure 1.b. Dynamic Responses to a Payroll Tax Cut

Consumption

Terms of Trade
Figure 1.c. Dynamic Responses to a Payroll Tax Cut

Nominal interest rate

Real interest rate
Interaction between:

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

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

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

Conditional analysis:

(i) demand shocks
(ii) technology shocks
Figure 2.a. Wage Flexibility, Exchange Rate Policy and Welfare: Demand Shocks
Figure 2.b. Wage Flexibility, Exchange Rate Policy and Welfare: Demand Shocks

**Welfare Loss Components**

employment gap

price inflation

wage inflation
Figure 2.c. *Welfare Impact of Enhanced Wage Flexibility: Demand Shocks*

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

\[
\frac{\partial \text{Welfare}}{\partial \theta_w} < 0
\]
Figure 3.a.  Wage Flexibility, Exchange Rate Policy and Welfare: Technology Shocks
Figure 3.b: Wage Flexibility, Exchange Rate Policy and Welfare: Technology Shocks

Welfare Loss Components

- Employment gap
- Price inflation
- Wage inflation
Figure 3.c. Wage Flexibility, Exchange Rate Policy and Welfare: Technology Shocks

**Welfare Impact Regions**

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

\[
\frac{\partial \text{Welfare}}{\partial \theta_w} < 0
\]
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 \((\eta = 1)\)

\[
\mathbb{L} \sim (1 + \varphi) \text{var}(\tilde{n}_t) + \left( \frac{\epsilon_p}{\lambda_p (1 - \alpha)} \right) \text{var}(\pi^p_t) + \left( \frac{\epsilon_w}{\lambda_w} \right) \text{var}(\pi^w_t)
\]

- Conditional analysis:
  (i) demand shocks
  (ii) technology shocks
- Robustness to alternative calibrations:
  - trade elasticity, \( \eta \)
  - openness, \( \nu \)
  - price stickiness, \( \theta_p \)
Figure 4. Wage Flexibility, Exchange Rate Policy and Welfare: Demand Shocks
The Case of a Non-Unitary Elasticity of Substitution

Welfare Loss

η = 1/2

η = 2

Low Elasticity

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

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

$\frac{\partial Welfare}{\partial \theta_w} < 0$

$\frac{\partial Welfare}{\partial \theta_w} > 0$
Figure 5.a Welfare Impact of Enhanced Wage Flexibility: Demand Shocks

The Role of Openness under a Low Trade Elasticity ($\eta=0.5$)
Welfare Impact of Enhanced Wage Flexibility: Demand Shocks
*The Role of Price Stickiness*
Concluding remarks

- Conventional wisdom

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

  ⇒ 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"

  ⇒ least effective in a currency union

- Finding #2: Increased wage flexibility often welfare-reducing.

  ⇒ more likely so in a currency union.