Appendix A. Labor Market

We now provide further details regarding how the labor market works in our model. Following Galí (2011), we assume that each representative household consists of a unit squared of individuals indexed by \((i, j) \in [0, 1] \times [0, 1]\), where \(i\) represents the variety of labor service provided by the individual and \(j\) indexes her disutility from working, given by \(\chi j^\varphi\). Let \(n_t^x(i)\) denote the number of variety-i workers in household \(x = u, c\) employed at time \(t\). Total household disutility from working is given by

\[\chi \int_0^1 \int_0^{n_t^x(i)} j^\varphi \, dj \, di = \chi \int_0^1 \frac{n_t^x(i)^{1+\varphi}}{1+\varphi} \, di.\]

Given the type-specific wage \(W_t(i)\), the number of type-i workers that each household would like to send to work is

\[\arg \max_{n_t^x(i)} \left\{ \lambda_t^x \frac{W_t(i)}{P_t} n_t^x(i) - \zeta_t \chi \frac{n_t^x(i)^{1+\varphi}}{1+\varphi} \right\} = \left( \frac{\lambda_t^x W_t(i)}{\zeta_t \chi P_t} \right)^{1/\varphi} \equiv l_t^x(i),\]

where \(\lambda_t^x \equiv 1/c_t^x\). Unemployment in the market for type-i labor is the number of workers willing to work at the going wage minus effective labor demand: \(u_t(i) \equiv \sum_{x=u,c} l_t^x(i) - \sum_{x=u,c} n_t^x(i)\).
Let
\[ l^x_t \equiv \int_0^1 l^x_t(i) \, di = \left( \frac{\lambda^x_t W_t}{\zeta_t \chi P_t} \right)^{1/\varphi} \int_0^1 \left( \frac{W_t(i)}{W_t} \right)^{1/\varphi} \, di \]
\[ = \left( \frac{\lambda^x_t W_t}{\zeta_t \chi P_t} \right)^{1/\varphi} \Delta^w_{t,l}, \]
\[ N^x_t \equiv \int_0^1 n^x_t(i) \, di = n^x_t \int_0^1 \left( \frac{W_t(i)}{W_t} \right)^{-\varepsilon_w} \, di = n^x_t \Delta^w_{t,n}, \]
denote total household-specific labor supply and labor demand, respectively, where \( \Delta^w_{t,l} \equiv \int_0^1 (W_t(i)/W_t)^{1/\varphi} \, di \) and \( \Delta^w_{t,n} \equiv \int_0^1 (W_t(i)/W_t)^{-\varepsilon_w} \, di \) are indices of wage dispersion. Then, aggregate unemployment is
\[ u_t \equiv \int_0^1 u_t(i) \, di = l_t - N_t, \]
where \( l_t \equiv \sum_{x=u,c} l^x_t \) and \( N_t \equiv \sum_{x=u,c} N^x_t \) are aggregate labor supply and labor demand, respectively. The unemployment rate is \( u^\text{rate}_t \equiv u_t/l_t \).

Finally, the nominal wage income earned by each type-\( x \) household equals \( \int_0^1 W_t(i) \, n^x_t(i) \, di = W_t n^x_t, \) where \( n^x_t \equiv n^e_{t,x} + n^h_{t,x}. \)

**Appendix B. Additional Experiments**

We present here results from a set of alternative exercises:

- Figure B.1 plots the effects of a goods market reform in the case with the baseline degree of nominal rigidities and the case of near full price and wage rigidity.
- Figure B.2 repeats the same exercise for a labor market reform.
- Figures B.3 and B.4 replicate the same exercises as Figures B.1 and B.2 except that now the economy is at the ZLB.
- Figures B.5 shows the effects of a labor market reform when the elasticities of substitution in the goods and labor markets are the same.
- Figures B.6 replicates Figure B.5 when the economy is at the ZLB.
Figure B.1. Internal Devaluations: Goods Market Reform

Figure B.2. Internal Devaluations: Labor Market Reform
Figure B.3. Internal Devaluations: Goods Market Reform at the ZLB

Marginal effects of structural reforms in goods markets, when the baseline has zero lower bound

Figure B.4. Internal Devaluations: Labor Market Reform at the ZLB

Marginal effects of structural reforms in labor markets, when the baseline has zero lower bound

Deviations from a baseline scenario with deleveraging and negative demand shocks that have taken interest rates to the ZLB.
Figure B.5. Different Elasticities of Substitution: Baseline vs. $\varepsilon_p = 3.31$. Labor Market Reform

Figure B.6. Different Elasticities of Substitution at the ZLB: Baseline vs. $\varepsilon_p = 3.31$. Labor Market Reform