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Online appendix

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Appendices

A Model Appendix

A.1 Firms

There is a competitive aggregator firm that produces final goods from a continuum of intermediate-goods firms. It has the following problem:

$$\min_{[Y_{i,t}]_0^1} \int_0^1 P_{i,t} Y_{i,t} di$$

s.t.

$$Y_t = \left(\int_0^1 Y_{i,t}^{\frac{\sigma-1}{\sigma}} \right)^{\frac{\sigma}{\sigma-1}}$$

This yields the following first-order condition:

$$Y_{i,t} = Y_t \left(\frac{P_{i,t}}{P_t} \right)^{-\sigma} \tag{A.1}$$

This implies the following price level:

$$P_t = (\int_0^1 P_{i,t}^{1-\sigma})^{\frac{1}{1-\sigma}} \tag{A.2}$$

Each intermediate-goods firm is monopolistic. It can change its price only with probability λ. When firms can change their price $P_t^\star$, they set $P_t^\star$, taking into account the demand for their good from the final-goods firm. They discount a period $t+i$ periods in the future by $M_{t,t+i}$. They face a constant marginal cost, which implies they have constant returns to scale production. Here is their maximization problem in real terms:

$$\max_{P_t^\star, \{Y_{i,t+j}\}_{j=0}^\infty} \mathbb{E}_t \left[\sum_{j=0}^\infty M_{t,t+j} (1-\lambda)^j \left[\frac{P_t^\star Y_{i,t+j}}{P_{t+j}} - MC_{t+j} Y_{i,t+j} \right] \right]$$

s.t.

$$Y_{i,t} = Y_t \left(\frac{P_t^\star}{P_t} \right)^{-\sigma}$$

Inputting demand:

$$\max_{P_t^\star} \mathbb{E}_t \left[\sum_{j=0}^{\infty} M_{t,t+j}(1-\lambda)^j Y_{t+j} \left(\frac{P_{t+j}}{P_t} \right)^{\sigma-1} \left[\left(\frac{P_t^\star}{P_t} \right)^{1-\sigma} - MC_{t+j} \frac{P_{t+j}}{P_t} \left(\frac{P_t^\star}{P_t} \right)^{-\sigma} \right] \right] \tag{A.3}$$

Taking the first-order condition of equation (A.3) (with respect to $\frac{P_t^\star}{P_t}$):

$$\mathbb{E}_t \left[\sum_{j=0}^{\infty} M_{t,t+j}(1-\lambda)^j Y_{t+j} \left(\frac{P_{t+j}}{P_t} \right)^{\sigma-1} \left[(1-\sigma) \left(\frac{P_t^\star}{P_t} \right)^{-\sigma} + \sigma MC_{t+j} \frac{P_{t+j}}{P_t} \left(\frac{P_t^\star}{P_t} \right)^{-\sigma-1} \right] \right] = 0$$

Simplifying:

$$\mathbb{E}_t \left[\sum_{j=0}^{\infty} M_{t,t+j}(1-\lambda)^j Y_{t+j} \left(\frac{P_{t+j}}{P_t} \right)^{\sigma-1} \left[\frac{P_t^\star}{P_t} - \frac{\sigma}{\sigma-1} MC_{t+j} \frac{P_{t+j}}{P_t} \right] \right] = 0 \tag{A.4}$$

I assume that $\bar{\pi} = 0$, which implies that $\overline{\frac{P^\star}{P}} = \frac{\sigma}{\sigma-1} \bar{MC}$. Also note that $\bar{M}_{t,t+j} = \beta^j$. The first-order condition can then be log-linearized to yield: [3]

$$\sum_{j=0}^{\infty} \beta^j (1-\lambda)^j \bar{Y} \bar{\Pi}^{j(\sigma-1)} \overline{\frac{P^\star}{P}} \widehat{\left(\frac{P_t^\star}{P_t} \right)} = \sum_{j=0}^{\infty} \beta^j (1-\lambda)^j \bar{Y} \bar{\Pi}^{j(\sigma-1)} \overline{\frac{P^\star}{P}} \left[\hat{M}C_{t+j} + \widehat{\left(\frac{P_{t+j}}{P_t} \right)} \right]$$

Simplifying:

$$\widehat{\left(\frac{P_t^\star}{P_t} \right)} = (1-\beta(1-\lambda)) \sum_{j=0}^{\infty} \beta^j (1-\lambda)^j \left[\hat{M}C_{t+j} + \widehat{\left(\frac{P_{t+j}}{P_t} \right)} \right]$$

This can be rewritten iteratively as:

$$\widehat{\left(\frac{P_t^\star}{P_t} \right)} = (1-\beta(1-\lambda)) \widehat{MC}_t + \beta(1-\lambda) \widehat{\left(\frac{P_{t+1}^\star}{P_t} \right)} \tag{A.5}$$

Next, note that by equation (A.2):

$$P_t^{1-\sigma} = \lambda P_t^{\star 1-\sigma} + (1-\lambda) P_{t-1}^{1-\sigma}$$

This implies that $\overline{\left(\frac{P^\star}{P} \right)} = 1$, and therefore $\overline{MC} = \frac{\sigma-1}{\sigma}$.

[3] To simplify this log-linearisation, note that if $\sum_{i=0}^{K} M_{t+i}[A_{t+i} - B_{t+i}]$ and $\bar{A}_{t+i} = \bar{B}_{t+i}$ then $\sum_{i=0}^{K} \bar{M}_{t+i} \bar{A}_{t+i} \hat{A}_{t+i} = \sum_{i=0}^{K} \bar{M}_{t+i} \bar{B}_{t+i} \hat{B}_{t+i}$.

Rearranging:

$$(1+\pi_t)^{1-\sigma} = \lambda \left(\frac{P_t^\star}{P_t}\right)^{1-\sigma} (1+\pi_t)^{1-\sigma} + (1-\lambda)$$

Log-linearization yields:

$$\hat{\pi}_t = \lambda(\widehat{\left(\frac{P_t^\star}{P_t}\right)} + \hat{\pi}_t)$$

$$\hat{\pi}_t = \frac{\lambda}{1-\lambda}\widehat{\left(\frac{P_t^\star}{P_t}\right)} \tag{A.6}$$

Inputting equation (A.6) at $t+1$ into equation (A.5) yields:

$$\frac{1-\lambda}{\lambda}\hat{\pi}_t = (1-\beta(1-\lambda))\widehat{MC}_t + \beta(1-\lambda)(\frac{1-\lambda}{\lambda}+1)\mathbb{E}_t[\hat{\pi}_{t+1}] \tag{A.7}$$

Simplifying yields:

$$\hat{\pi}_t = \kappa\widehat{MC}_t + \beta\mathbb{E}_t[\hat{\pi}_{t+1}] \tag{A.8}$$

where:

$$\kappa = \frac{\lambda(1-\beta(1-\lambda))}{1-\lambda}$$

The degree of price dispersion affects aggregated production and profits, so it also needs to be computed.

Price dispersion, which is denoted by ν_t, can be rewritten as an iterative process:

$$\nu_t = (\int_0^1 (\frac{P_{j,t}}{P_t})^{-\sigma} dj)$$

$$\nu_t = (1-\lambda)(\int_0^1 (\frac{P_{j,t-1}}{P_t})^{-\sigma} dj) + \lambda(\frac{P_t^\star}{P_t})^{-\sigma}$$

$$\nu_t = (1-\lambda)(\int_0^1 (\frac{P_{j,t-1}}{P_{t-1}})^{-\sigma} dj \frac{P_{t-1}^{-\sigma}}{P_t^{-\sigma}}) + \lambda(\frac{P_t^\star}{P_t})^{-\sigma}$$

$$\nu_t = (1-\lambda)\nu_{t-1}\Pi_t^\sigma + \lambda(\frac{P_t^\star}{P_t})^{-\sigma} \tag{A.9}$$

Log-linearizing this yields:

$$\bar{\nu}\hat{\nu}_t = (1-\lambda)\bar{\nu}\bar{\Pi}^\sigma(\hat{\nu}_{t-1} + \sigma\hat{\Pi}_t) - \sigma\lambda\frac{\overline{P^\star}}{P}\widehat{\left(\frac{P_t^\star}{P_t}\right)} \tag{A.10}$$

Applying $\bar{\pi} = 0$ and $\overline{\frac{P^{\star}}{P}} = 1$ and noting that this implies $\bar{\nu} = 1$ by equation (A.9), equation (A.10) can then be simplified to yield:

$$\hat{\nu}_t = (1-\lambda)(\hat{\nu}_{t-1} + \sigma\hat{\Pi}_t) - \sigma\lambda\widehat{\left(\frac{P_t^{\star}}{P_t}\right)} \tag{A.11}$$

Next, input equation (A.6) into equation (A.11) to find:

$$\hat{\nu}_t = (1-\lambda)\hat{\nu}_{t-1} \tag{A.12}$$

This can hold only if $\hat{\nu}_t = 0$ under a zero-inflation steady state.

To determine the marginal cost, additional assumptions must be made about firms' production and households' utility.

Intermediate-goods firms have a linear production function over labor:

$$Y_{i,t} = A_t L_{i,t}$$

Inputting equation (A.1) and aggregating yields:

$$Y_t \int_0^1 \left(\frac{P_{i,t}}{P_t}\right)^{-\sigma} di = A_t L_t$$

Log-linearizing and noting that $\int_0^1 \widehat{\left(\frac{P_{i,t}}{P_t}\right)^{-\sigma}} di = 0$ yields:

$$\hat{Y}_t = \hat{A}_t + \hat{L}_t \tag{A.13}$$

Firms therefore face the following constant marginal cost to produce:

$$MC_t = \frac{W_t}{A_t} \tag{A.14}$$

Log-linearizing equation (A.14) yields:

$$\widehat{MC}_t = \hat{W}_t - \hat{A}_t \tag{A.15}$$

To keep the model in the main text simple, I assume that $A_t = 1$, so $\hat{A}_t = 0$.

A.2 Adjusted Definitions for Log-Linearization

I adjust the definition of the transfer to credit-constrained households so that $\bar{\mathbb{T}}_h = \bar{C}_h$:

$$\mathbb{T}_{h,t} = T_{h,t} + \bar{W}\bar{L}$$

I set the steady state of the credit-constrained bond variable, $\bar{B}_h$, to equal zero to allow $B_{h,t}$ to be log-linearized. I consider the exponential:

$$b_{h,t} = \exp(\frac{B_{h,t}}{P_t})$$

In this case, the consumption of credit-constrained households becomes:

$$C_{h,t} = \rho_h \left(W_t L_{h,t} - \bar{W}\bar{L}_h + \frac{I_{t-1}}{\Pi_t} \log(b_{h,t-1}) + \mathbb{T}_{h,t} \right) + (1-\rho_h)\bar{C}_h \tag{A.16}$$

I also rewrite the process for government transfers to credit-constrained households:

$$\log(\mathbb{T}_{h,t}) = \log(\bar{\mathbb{T}}_h) + \tilde{\epsilon}_{h,t} \tag{A.17}$$

A.3 Applications of Utility Functions

When I assume an additively separable utility function, I set:

$$U(C,L) = \frac{C^{1-\gamma}}{1-\gamma} - \Psi \frac{L^{1+\eta}}{1+\eta} \tag{A.18}$$

In this case, equations (1), (2), (6), and (7) become:

$$C_{p,t}^{-\gamma} = \mu_{p,t} \tag{A.19}$$

$$\Psi L_{p,t}^{\theta} + \psi\mu_{p,t}(L_{p,t} - L_{p,t-1}) - \beta\psi\mu_{p,t+1}(\mathbb{E}_t[L_{p,t+1}] - L_{p,t}) = \mu_{p,t}W_t \tag{A.20}$$

$$\Psi L_{h,t}^{\theta} + \psi\mu_{h,t}(L_{h,t} - L_{h,t-1}) - \beta\psi\mu_{h,t+1}(\mathbb{E}_t[L_{h,t+1}] - L_{h,t}) = \mu_{h,t}W_t \tag{A.21}$$

$$C_{h,t}^{-\gamma} = \mu_{h,t} \tag{A.22}$$

I sometimes instead assume GHH utility (particularly in the simple model):

$$U(C,L) = \frac{1}{1-\gamma} \left(C - \Psi \frac{L^{1+\eta}}{1+\eta} \right)^{1-\gamma} \tag{A.23}$$

In this case, equations (1), (2), (6), and (7) become:

$$\left(C_{p,t} - \Psi\frac{L_{p,t}^{1+\theta}}{1+\theta}\right)^{-\gamma} = \mu_{p,t} \tag{A.24}$$

$$\mu_{p,t}[\Psi L_{p,t}^{\theta} + \psi(L_{p,t} - L_{p,t-1})] - \beta\psi\mathbb{E}_t[\mu_{p,t+1}(L_{p,t+1} - L_{p,t})] = \mu_{p,t}W_{p,t} \tag{A.25}$$

$$\mu_{h,t}[\Psi L_{h,t}^{\theta} + \psi(L_{h,t} - L_{h,t-1})] - \beta\psi\mathbb{E}_t[\mu_{h,t+1}(L_{h,t+1} - L_{h,t})] = \mu_{h,t}W_t \tag{A.26}$$

$$\left(C_{h,t} - \Psi\frac{L_{h,t}^{1+\theta}}{1+\theta}\right)^{-\gamma} = \mu_{h,t} \tag{A.27}$$

A.4 Steady State

The monetary policy rules pin down $\bar{\pi} = 0$, so there is no price dispersion in the steady state, $\bar{\nu} = 1$. By equation (3):

$$\bar{I} = \frac{1}{\beta}$$

As was already observed in appendix A.1:

$$\overline{MC} = \frac{\sigma - 1}{\sigma}$$

By equation (A.14):

$$\bar{W} = \overline{MC}$$

A.4.1 Additive Utility

By equation (A.24) and equation (A.25):

$$\Psi\bar{L}_p^{\theta}\bar{C}_p^{\gamma} = \bar{W} \tag{A.28}$$

Similarly, by equation (A.27) and equation (A.26):

$$\Psi\bar{L}_h^{\theta}\bar{C}_h^{\gamma} = \bar{W} \tag{A.29}$$

Combining equation (14), equation (15), and the production function yields:

$$p\bar{C}_p + (1-p)\bar{C}_h = \frac{\bar{A}(p\bar{L}_p + (1-p)\bar{L}_h}{\bar{\nu}} \tag{A.30}$$

Setting that $\bar{C}_h = \tau\bar{C}_p$ and combining equation (A.28), equation (A.29), and equation (A.30) yields:

$$(p + (1-p)\tau)\bar{C}_p = \frac{\bar{A}\bar{W}^{\frac{1}{\theta}}}{\Psi\bar{\nu}}(p + (1-p)\tau)\bar{C}_p^{\frac{-\gamma}{\theta}}$$

Rearranging this yields:

$$\bar{C}_p = \left(\frac{\bar{A}\bar{W}^{\frac{1}{\theta}}}{\Psi\bar{\nu}}\frac{p + (1-p)\tau^{\frac{-\gamma}{\theta}}}{p + (1-p)\tau}\right)^{\frac{\theta}{\gamma+\theta}}$$

The values of $\bar{L}_p, \bar{C}_h, \bar{L}_h, \bar{Y}, \bar{\mu}_p, \bar{\mathbb{T}}_h$ then follow.

A.4.2 GHH Utility

$\bar{L}_p$ and $\bar{L}_h$ are very easy to compute:

$$\bar{L}_p = \frac{1}{\Psi}\bar{W}^{\frac{1}{\theta}}$$

$$\bar{L}_h = \frac{1}{\Psi}\bar{W}^{\frac{1}{\theta}}$$

$$\bar{Y} = \frac{\bar{A}(p\bar{L}_p + (1-p)\bar{L}_h)}{\bar{\nu}}$$

$\bar{C}_h = \tau\bar{C}_p$ can be specified so that the steady-state consumption of credit-constrained households is some fraction of patient households. In this case, equation (15) becomes:

$$p\bar{C}_p + (1-p)\tau\bar{C}_p = \bar{Y}$$

$$\bar{C}_p = \frac{1}{p + (1-p)\tau}\bar{Y}$$

The values of $\bar{C}_h, \bar{\mu}_p, \bar{\mathbb{T}}_h$ then follow.

A.5 Log-Linearized Equations

Equations (3) to (5), (10), (14), and (15) can be log-linearized to yield:

$$\hat{\mu}_{p,t} = \hat{i}_t - \mathbb{E}_t[\hat{\pi}_{t+1}] + \mathbb{E}_t[\hat{\mu}_{p,t+1}]$$

$$\bar{C}\hat{C}_{h,t} + \hat{b}_{h,t} = \bar{W}\bar{L}(\hat{W}_t + \hat{L}_{h,t}) + \frac{1+\bar{i}}{1+\bar{\pi}}\hat{b}_{h,t-1} + \bar{T}_h\hat{T}_{h,t}$$

$$\bar{C}_h\hat{C}_{h,t} = \rho_h \left(\bar{W}\bar{L}_h(\hat{W}_t + \hat{L}_{h,t}) + \frac{1+\bar{i}}{1+\bar{\pi}}\hat{b}_{h,t-1} + \bar{\mathbb{T}}_h\hat{\mathbb{T}}_{h,t} \right)$$

$$\hat{\mathbb{T}}_{h,t} = \tilde{\epsilon}_{T,t}$$

$$\hat{L}_t = \frac{\bar{L}_p}{\bar{L}}\hat{L}_{p,t} + \frac{\bar{L}_h}{\bar{L}}\hat{L}_{h,t}$$

$$p\bar{C}_p\hat{C}_{p,t} + (1-p)\bar{C}_h\hat{C}_{h,t} = \bar{Y}\hat{Y}_t$$

In the case of additive utility, equations (A.19) to (A.22) can be log-linearized to yield:

$$-\gamma\hat{C}_{p,t} = \hat{\mu}_{p,t}$$

$$\Psi\theta\bar{L}_p^{\theta}\hat{L}_{p,t} + \psi\bar{L}_p\bar{\mu}_p(\hat{L}_{p,t} - \hat{L}_{p,t-1}) - \beta\psi\bar{\mu}_p\bar{L}_p(\mathbb{E}_t[\hat{L}_{p,t+1} - \hat{L}_{p,t}) = \bar{\mu}_p\bar{W}(\hat{\mu}_{p,t} + \hat{W}_t)$$

$$\Psi\theta\bar{L}_h^{\theta}\hat{L}_{h,t} + \psi\bar{L}_h\bar{\mu}_h(\hat{L}_{h,t} - \hat{L}_{h,t-1}) - \beta\psi\bar{\mu}_h\bar{L}_h(\mathbb{E}_t[\hat{L}_{h,t+1} - \hat{L}_{h,t}) = \bar{\mu}_h\bar{W}(\hat{\mu}_{h,t} + \hat{W}_t)$$

$$-\gamma\hat{C}_{h,t} = \hat{\mu}_{h,t}$$

In the case of GHH utility, equations (A.24) to (A.27) can be log-linearized to yield:

$$-\gamma(\bar{C}_p\hat{C}_{p,t} - \Psi\bar{L}_p^{1+\theta}\hat{L}_{p,t}) = \left(\bar{C}_p - \Psi\frac{\bar{L}_p^{1+\theta}}{1+\theta}\right)\hat{\mu}_{p,t}$$

$$\theta\hat{L}_{p,t} + \frac{\psi\bar{L}_p}{\bar{W}}(\hat{L}_{p,t} - \hat{L}_{p,t-1}) - \beta\frac{\psi\bar{L}_p}{\bar{W}}(\mathbb{E}_t[\hat{L}_{p,t+1}] - \hat{L}_{p,t}) = \hat{W}_t$$

$$-\gamma(\bar{C}_h\hat{C}_{h,t} - \Psi\bar{L}_h^{1+\theta}\hat{L}_{h,t} = \left(\bar{C}_h - \Psi\frac{\bar{L}_h^{1+\theta}}{1+\theta}\right)\hat{\mu}_{h,t}$$

$$\theta\hat{L}_{h,t} + \frac{\psi\bar{L}_h}{\bar{W}}(\hat{L}_{h,t} - \hat{L}_{h,t-1}) - \beta\frac{\psi\bar{L}_h}{\bar{W}}(\mathbb{E}_t[\hat{L}_{h,t+1}] - \hat{L}_{h,t}) = \hat{W}_t$$

B Model Calibration

I summarize the choice of parameters in table B.1. I take standard values for several parameters. I set γ to be 2, which corresponds to an intertemporal elasticity of substitution of 0.5. The patient consumer discount factor is set to be 0.96 on an annualized basis. The probability of price change is set to be 30 percent each quarter, which is in line with estimates from Nakamura and Steinsson (2008). I set the elasticity of substitution between goods, σ, to be 4. I set the parameter determining the relative importance of labor utility relative to consumption utility, Ψ, to be 1, which is in line with standard additive utility functions and with the GHH utility model in Cai, Liu, and Liu (2019). I set the size of the excess stimulus check to be 5 percent of the annual steady state income of credit-constrained households. This seems like a reasonable magnitude because between

Table B.1: Calibration

Description	Param.	Value
Standard Parameters		
Intertemporal elasticity of substitution (IES)	$\frac{1}{\gamma}$	0.5
Patient consumer discount factor	β	$0.96^{\frac{1}{4}}$
Frequency of price change	λ	0.3
Elasticity of labor supply (ELS)	$\frac{1}{\theta}$	0.25
Elasticity of substitution between goods	σ	4
Utility parameter for labor importance	Ψ	1
Model-Specific Parameters		
Weight of patient households	p	0.6
Consumption ratio $\left(\frac{\bar{C}_h}{\bar{C}_p}\right)$	τ	1
Proportion of excess stimulus consumed	ρ_h	0.33
S.d. of excess stimulus shock	σ_T	$0.04\bar{C}_h$
Extension Parameters		
Labor adjustment costs	ψ	0
Euler discounting	χ	1
Taylor parameter	ϕ_π	1.5
Price-level parameter	ϕ_p	1.5

December 2020 and April 2021, the US government issued stimulus checks equivalent to 7.5 percent of median household income in 2019.[4]

The elasticity of labor supply (ELS) is an important parameter in my model because it determines whether labor and output can increase in response to the issuance of stimulus checks. In the baseline model, I assume a high ELS of 2 ($\theta = 0.5$). This is in line with the macroeconomic literature, which measures both the intensive and extensive margin of labor supply when wages change, that is, changes in both hours worked and in the number of employees. As an alternative, I also consider a low ELS of 0.5 ($\theta = 2$). This is within the range of typical microeconomic estimates for the ELS (Peterman, 2016) and considers only changes in the hours worked when wages change. I think a low ELS is more convincing in this context. It seems reasonable to expect that firms will respond to such a brief increase in demand by having their existing employees work more hours rather than by hiring additional workers. A low ELS also fits the results in Coibion, Gorodnichenko, and Weber (2020), which finds that workers generally did not anticipate changing their labor supply in response to stimulus checks.[5]

[4]The checks provided $2,000 for most US individuals including children. At the time, the median household income was $68,703, and in 2020 the median household size was 2.58. I use 2019 median household income for a comparison to avoid the lockdown-induced drop in income.

[5]A limited literature finds that the short-term ELS is lower than the long-term ELS, which also supports the use of a low ELS in this model. Giertz (2010) finds a short-term elasticity of income to changes in tax brackets (which is similar to the ELS) of 0.19 to 0.33 compared with a long-term response of 0.78 to 1.46. On a very short-term basis, He, Qiu, and Cheng (2021) find, a 1 percent increase in the hourly wage of ride-sharing drivers reduces their labor supply 0.93 percent, perhaps because the drivers have specific monetary

Several papers suggest that credit-constrained consumers account for a large share of consumption. Campbell and Mankiw (1989) and Campbell and Mankiw (1990) estimate through time series analysis that 50 percent of US income flows to credit-constrained consumers. Kaplan, Violante, and Weidner (2014) argue through analysis of the Survey of Consumer Finances that 25 to 40 percent of US households are credit-constrained. In line with these estimates, I set the model such that 40 percent of the economy is made up of credit-constrained consumers, and these consumers have the same steady-state consumption as patient consumers.

Several papers suggest that credit-constrained consumers tend to spend stimulus checks quickly. Souleles (1999) finds that 35 to 60 percent of income tax rebates are spent within one quarter of their receipt, though the rebates studied were only about $300 to $600 per household. Johnson, Parker, and Souleles (2006) examine the 2001 income tax rebate and find that households spent 20 to 40 percent of their rebates on nondurable goods during the three-month period when they received their rebate and roughly two-thirds during the subsequent three-month period. Parker et al. (2013) find that households that received 2008 stimulus checks spent about 12 to 30 percent of their stimulus payments on nondurable goods and 50 to 90 percent in total during the three-month period of receipt. Coibion, Gorodnichenko, and Weber (2020) find that households expected to spend or had already spent about 40 percent of the first stimulus check they received during the COVID-19 pandemic as part of the Coronavirus Aid Relief and Economic Security (CARES) Act. I set the persistence of spending by credit-constrained households, ρ_h, to be 0.33, which implies that 33 percent of the stimulus checks given to credit-constrained households are spent in the first quarter, 22 percent in the second quarter, 25 percent in the third and fourth quarters, and 20 percent in subsequent years, all else being equal. This is a little slower than in some of the papers I mention, but those papers mainly consider stimulus checks that were smaller than those received during the pandemic and smaller than what I consider in this paper, so households may have been able to spend the checks more quickly in those cases.

I also set baseline parameters for the model extensions. In the baseline model, I do not include labor adjustment costs, so $\psi = 0$. The Taylor rule parameter for inflation is set to be the standard value of 1.5. The price-level target parameter is set to be 0.5 in the baseline case.

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