Monetary theory and policy, 4th edition: Typos and corrections

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Chapter 8 page 323: The minimization problem just above (8.11) should be the minimization with respect to N_{jt}.

page 326, fnt 10: dc_{sj} in both equations should be dc_{st}.

page 338: The linearization of the money demand equation. Equation (8.8) on page 338 gives the household's first-order condition for money holdings

$$\frac{\gamma m_t^{-b}}{c_t^{-\sigma}} = \frac{i_t}{1+i_t}. \tag{(8.8)}$$

To linearize this equation, proceed in the following steps following Uhlig's rules as discussed in the appendix to chapter 2, page 85. For the left side,

$$\frac{\gamma m_t^{-b}}{c_t^{-\sigma}} = \frac{\gamma m^{-b}\left(1+\hat{m}_t\right)^{-b}}{c^{-\sigma}(1+\hat{c}_t)^{-\sigma}} \approx \left(\frac{\gamma m^{-1}}{c^{-\sigma}}\right)\left(1-b\hat{m}_t+\sigma\hat{c}_t\right) = \left(\frac{i^{ss}}{1+i^{ss}}\right)\left(1-b\hat{m}_t+\sigma\hat{c}_t\right).$$

Thus,

$$\left(\frac{i^{ss}}{1+i^{ss}}\right)\left(1-b\hat{m}_t+\sigma\hat{c}_t\right) \approx \frac{i_t}{1+i_t}.$$

This implies

$$\left(1+i_t\right)\left(\frac{i^{ss}}{1+i^{ss}}\right)\left(1-b\hat{m}_t+\sigma\hat{c}_t\right) \approx i_t.$$

But $\left(1+i_t\right)i^{ss}/\left(1+i^{ss}\right) \approx i^{ss}\left(1+i_t-i^{ss}\right)$, so one obtains

$$i^{ss}\left(1+i_t-i^{ss}\right)\left(1-b\hat{m}_t+\sigma\hat{c}_t\right) \approx i^{ss}\left(1+i_t-i^{ss}-b\hat{m}_t+\sigma\hat{c}_t\right) \approx i_t,$$

or

$$i^{ss}\left(i_t-i^{ss}-b\hat{m}_t+\sigma\hat{c}_t\right) \approx i_t-i^{ss}.$$

Rearranging,

$$-b\hat{m}_t+\sigma\hat{c}_t \approx \left(\frac{1-i^{ss}}{i^{ss}}\right)\left(i_t-i^{ss}\right),$$

so (8.38) should read (using $\hat{c}_t = \hat{y}_t$ and $i^{ss}\left(i_t - i^{ss}\right) \approx 0$),

$$\hat{m}_t = \left(\frac{\sigma}{b}\right)\hat{y}_t - \left(\frac{1 - i^{ss}}{bi^{ss}}\right)\left(i_t - i^{ss}\right) \approx \left(\frac{\sigma}{b}\right)\hat{y}_t - \left(\frac{1}{bi^{ss}}\right)\left(i_t - i^{ss}\right).$$

(I thank Alireza Raanaei at Shiraz University for pointing this out.)

page 339: In equation (8.39), χ_t should be χ_{t+i}.

page 351: The parameters used to generate figure 8.2 are incorrectly descripbed. They are based on $\sigma = \eta = 1$, $\tau = 6$ and $\omega = 0.8$ and the formula (8.34) for κ and (8.27) for λ. (I would like to thank Ryohei Oishi on leace from the Bank of Japan and currently at UCL for pointing this out.)

page 356: In the equation at the top of the page, $\mathrm{E}_t V_\pi\left(\pi_t, e_{t+1}\right)$ should be multiplies by β, as shown in (8.71).

page 381 and 382: In the intermediate step of the approximations, the expressions $\left(\hat{c}_t^2 + \frac{1}{2}\hat{c}_t^3 + \frac{1}{4}\hat{c}_t^4\right)$ and $\left(\hat{n}_t^2 + \frac{1}{2}\hat{n}_t^3 + \frac{1}{4}\hat{n}_t^4\right)$ should be $\left(\hat{c}_t^2 + \hat{c}_t^3 + \frac{1}{4}\hat{c}_t^4\right)$ and $\left(\hat{n}_t^2 + \hat{n}_t^3 + \frac{1}{4}\hat{n}_t^4\right)$, respectively. Note that this does not change the final results as the third order terms are ignored in the second-order approximation.

(I thank Hengqiang Hu at the School of Finance, Nanjing University of Finance and Economics, China.for pointing out the corrections on pages 323, 326, 339, 356, 381, and 382.)

page 387: The equation midway down the page *should* read

$$\hat{\Delta}_t = \omega\hat{\Delta}_{t-1} + \frac{1}{2}\theta\left(\frac{\omega}{1-\omega}\right)\pi_t^2.$$

That is, the coefficient on $\hat{\Delta}_{t-1}$ should be ω, not $(1/2)\theta\omega$. (I thank Weicheng Lyu for pointing this out.)

Chapter 9 page 404: Eq. (26) should be $\gamma Y_t^* = (1-\gamma)\, C_{f,t} + \gamma C_{f,t}^*$. and in equation (9.23), P_f^* should have a t subscript: $P_{f,t}^*$.

page 409: In the equation for MC_t^*, the denominator should be A_t^*.

page 412: Line below first equation – σ_0 should be defined as $\sigma + \gamma\left(1 - \sigma\right)$.

page 415: In the minimization problem near the bottom of this page, the constraint should have $-\mu_t$ rather than $+\mu_t$.

page 419: Two lines below (9.44) should have $\alpha_H = 1 - \gamma$.

page 422: the expression in brackets in (9.50) and the equation above it should be

$$\left[\alpha_H + \alpha_H^*\left(\frac{\gamma}{1-\gamma}\right)Q_t^{\frac{\theta\sigma-1}{\sigma}}\right]$$

as in (9.49).

page 423: In equation (9.51), the terms $\left(\pi_{f,t}^* + \lambda^* x_t^*\right)$ should be $\left(\pi_{f,t}^{*2} + \lambda^* x_t^{*2}\right)$.

page 426: The first-order condition for labor suppl (above 9.59) – exponent on N should be η.

page 429: In equation (9,70), q_{t+1}^i should be q_{t+1}, and the equation below (9.70), $\mathrm{E}_t e_{t+1}^i - e_t^i$ should be $\mathrm{E}_t e_{t+1} - e_t$. Also, $Y_t^h(h)$ in hte lst line of the page should be $Y_t(h)$.

page 430: P_t^h and p_t^h should be $P_{h,t}$ and $p_{h,t}$.

page 431: Equation below (9.75) – dj should be dh.

page 432: In the expression for mc_t in the middle of the page, y^* should have a time subscript (i.e., y_t^*). In fnt13 on the same page, φ should be η.

page 433: In program, gmsoe.dyn, use to produce the figures for this section, s_gamma*alpha in line 94 should be s_gamma*gamma.

page 447: In the text below (9.98), $\delta = \gamma$ should be $\delta = 1 - \gamma$, $\delta > \gamma$ should be $\delta > 1 - \gamma$, and in the text below the final equation on hte page, the expression for π_t^R should be $\pi_t^R = \pi_t^F - \pi_t^H = s_t = s_{t-1}$. Line 2 of the summary section should state "firms maximizing profits..."

(I thank Hengqiang Hu at the School of Finance, Nanjing University of Finance and Economics, China.for pointing out the above corrections in chapter 9).

page 433: The correct expression for $\tilde{\rho}_t$ in equation (9.84) is

$$\begin{aligned}\tilde{\rho}_t &= \rho_t + \sigma_\gamma \left(\mathrm{E}_t \tilde{y}_{t+1} - \tilde{y}_t\right) \\ &= \rho + \sigma_\gamma \gamma \left(\phi - 1\right) \left(\mathrm{E}_t y_{t+1}^* - y_t^*\right) + \sigma_\gamma \left(\mathrm{E}_t \tilde{y}_{t+1} - \tilde{y}_t\right).\end{aligned}$$

In the text, there is a "$\rho_t =$" that does not belong in the first line, and $\sigma_\gamma \gamma$ incorrectly appears as $\sigma_\gamma \alpha$ in the second line. (Pointed out by Prateek Arora.)

Section 9.2: There is an inconsistency in the treatment of the flexible price output level in (9.40) and the shock appearing in the policy problem on page 415. The policy problem is correct only if the output gap x_t that appears in the loss function and in the inflation equation is interpreted as the gap between actual output and efficient output. This is consistent with the definition of y_t^f in (9.40) on page 412 as it does not include the markup shock μ_t that appears in the inflation equation in the policy problem. However, a markup would affect the flexible-price level of output, though not its efficient level. The dynare code for this model, cgg2c.dyn, has been modified to correctly use the efficient output gap in the objective function and defines flexible-price output to include the impact of the markup shock. cgg2_fexo.dyn is similarly modified.

A second issue relates to the treatment of foreign output in the definitions of flex-price and efficient output and in the policy problem. In the appendix (section 9.7), y_t^f and y_t^{*f} are by equations 2 and 11 of the system given on page 448. For the policy problem, however, I did not derive the coordinated policy outcome but implicitly assumed the home and foreign countries set policy separately. In that case, the home country's definition of flex-price output should take foreign output as given and so y_t^f would depend on y_t^*, not y_t^{*f}. The dynare file cgg2c_revised.dyn, available at https://ucsc.people.edu/~walshc/mtp4e/programs not reflects these changes.

(I would like to thank Juan Paez-Farrell, University of Sheffield, for bringing these corrections to my attention.)

Chapter 10 page 465: The first equation in section 10.3.2 should read

$$i_{n,t} = \frac{1}{n} \sum_{i=0}^{n-1} \mathrm{E}_t r_{t+i} + \frac{1}{n} \mathrm{E}_t \pi_{t+n}.$$

The upper limit of the summation is given incorrectly as n in the text.

(I would like to thank Juan Paez-Farrell, University of Sheffield, for bringing this correction to my attention.)