Chapter 1.1

p. 9/10: Figure 1.1 was computed for the parameter values $T = 59$, $\alpha = 0.50$, and $\rho = 0.35$ and not as stated on p.9 for $\alpha = 0.35$ and $\rho = 0.5$.

Chapter 1.2

p. 15: equation (1.13) should be

$$v(K) = \max_{0 \leq K' \leq f(K)} u(f(K) - K') + \beta v(K').$$

p. 30: the Lagrangian should be

$$\mathcal{L} = \sum_{t=0}^{\infty} \beta^t \left[ u(C_t) + \lambda_t (f(K_t) - C_t - K_{t+1}) + \mu_t C_t + \omega_{t+1} K_{t+1} \right].$$

Chapter 1.3

p. 36: The derivative of $\mathcal{L}$ with respect to $K_1$ should be:

$$\frac{\partial \mathcal{L}}{\partial K_1} = E_0 \{-\lambda_0 + \omega_1 + \beta \lambda_1 (1 - \delta + Z_1 f'(K_1))\} = 0,$$

Chapter 1.4

p. 59: in equation (1.43) the index of $r$ is missing. Thus, this equation should read:

$$K_{t+1} - K_t \leq w_t N_t + (r_t - \delta) K_t - C_t.$$

p. 63: the exponent in the second equation from the top of the page is not $-\eta$ but $+\eta$. Thus, the equation should be

$$0 = \left( \frac{Z^\rho_{t+1} N^{1-\alpha}_{t+s+1} k^{\alpha}_{t+s+1}}{Z_t^\rho N^{1-\alpha}_{t+s} k^{\alpha}_{t+s}} + (1 - \delta) k_{t+s+1} - a k_{t+s+2} \right)^{\eta} \times \left( \frac{1 - N_{t+s}}{1 - N_{t+s+1}} \right)^{\theta(1-\eta)} - \beta a^{-\eta} \left( 1 - \delta + a Z^\rho_{t+1} N^{1-\alpha}_{t+s+1} k^{\alpha}_{t+s+1} \right).$$
Appendix 2

p. 76: The growth factor of $F(X_t, 1)$, $g_F$ must be smaller not greater than on. Thus:

$$g_F := \frac{F(X_{t+1}, 1)}{F(X_t, 1)} = \text{constant} < 1$$

p. 78: equation (A.2.3), the first line on the rhs of this equation should be

$$\frac{C^{1-n}v_1(1 - N)}{1 - \eta} + v_2(1 - N) \text{ if } \eta \neq 1.$$  

The brace below the term $u_{11}(\cdot)/u_1(\cdot)C$ should not span the term $dC/C$, thus:

$$\frac{u_{21}(\cdot)}{u_2(\cdot)} \frac{dC}{C} = \frac{u_{11}(\cdot)}{u_1(\cdot)} \frac{dC}{C} + \frac{dA}{A}.$$

Problem 1.2

p. 81: in the mylist of the planers problem, line 12 from the top, this equation should be $A_t = A_{t-1}e^{\mu + \epsilon_t}$.

Problem 1.3

p. 82: in the statement of the planer’s problem, $1 \geq N \geq 0$ (not $1 \geq N \leq 0$), in the second line below the statement of the planer’s problem $\sigma_\xi = 0.01$ (and not $\sigma_\gamma$), in line c): $\sigma_\xi$ (and not $\sigma_{x \cdot}$).

Chapter 2.3

p. 111: the matrix in the second line of equation (2.51) should be $W_{x\lambda}$ (and not $W_{xx}$).

Chapter 2.4

p. 134: In Table 2.3, $\alpha = 0.27$ (and not $\alpha = 0.73$).

Appendix 4

p. 144: equation (A.4.8) should be

$$y_t := \frac{Y_t}{A_t} = Z_t N_1^{1-\alpha} k_t^\alpha \left[ n_t \frac{P_{At}}{P_t} + (1 - n_t) \frac{\pi}{\pi_t} \right] - j_t F \left[ (1 - \varphi) \frac{P_{At}}{P_t} + \varphi \frac{\pi}{\pi_t} \right].$$
p. 146: • equation (A.4.10d) should be

\[ \alpha \hat{N}_t + \hat{w}_t = \alpha \hat{k}_t + \hat{g}_t + \hat{Z}_t. \]

• equation (A.4.10e) should be

\[ (\alpha - 1) \hat{N}_t + \hat{r}_t = (\alpha - 1) \hat{k}_t + \hat{g}_t + \hat{Z}_t. \]

• equation (A.4.10f) should be

\[ \hat{y}_t - \vartheta(1 - \alpha) \hat{N}_t = \vartheta \alpha \hat{k}_t + \vartheta \hat{Z}_t + (1 - \vartheta) \hat{j}_t. \]

• the next to last line should be:

from equation (A.4.8). The six equations (A.4.10a) through (A.4.10f) ...

Chapter 4.3

p. 212: the equation step 4) should be

\[ R(\gamma, K_0) := \beta \left[ \frac{\hat{C}_t}{\hat{C}_0} \right]^{-\eta} \left( 1 - \delta + \alpha K_1^{\alpha - 1} \right) - 1. \]

p. 217: the last equation should be

\[ \phi(Z, K) := \beta \int \int_{\mathbb{Z}} g(e^{\epsilon_2 + \epsilon}, Z, K)(2\pi\sigma^2)^{-1/2} e^{-(1/2\sigma^2)c^2} d\epsilon. \]

p. 214: there are some missing rows in Table 4.1. The table should appear as follows:

Chapter 5.1

p. 243: the expression for the Lagrangian should be

\[ \mathcal{L} = E_0 \sum_{t=0}^{\infty} \left\{ \beta^t \left[ u(c_t) + \lambda_t \left( 1_{\epsilon_t = 0} b_t + (1 - \tau) r_t a_t \right. \right. \\
\left. \left. + 1_{\epsilon_t = 1} (1 - \tau) w_t + a_t - a_{t+1} - c_t \right) \right] \right\} \]

p. 243: equation (5.5) should be

\[ \frac{u'(c_t)}{\beta} = E_t [u'(c_{t+1})(1 + (1 - \tau)r_{t+1})]. \]
Table 4.1

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>Least Squares</th>
<th>Galerkin</th>
<th>Collocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>α = 0.28, β = 0.994, δ = 1, η = 1</td>
<td>0.432874</td>
<td>0.432875</td>
<td>0.432877</td>
</tr>
<tr>
<td>γ₀</td>
<td>0.064087</td>
<td>0.064088</td>
<td>0.064102</td>
</tr>
<tr>
<td>γ₁</td>
<td>−0.006156</td>
<td>−0.006154</td>
<td>−0.006156</td>
</tr>
<tr>
<td>γ₂</td>
<td>0.000926</td>
<td>0.000926</td>
<td>0.000943</td>
</tr>
<tr>
<td>γ₃</td>
<td>−0.000173</td>
<td>−0.000171</td>
<td>−0.000165</td>
</tr>
<tr>
<td>Distance</td>
<td>0.000084</td>
<td>0.000089</td>
<td>0.000063</td>
</tr>
</tbody>
</table>

α = 0.28, β = 0.994, δ = 0.011, η = 2

| γ₀ | 2.399436 | 2.399443 | 2.399444 |
| γ₁ | 0.516137 | 0.516136 | 0.516066 |
| γ₂ | −0.034548 | −0.034591 | −0.034723 |
| γ₃ | 0.005088 | 0.005086 | 0.005199 |
| γ₄ | −0.000931 | −0.000898 | −0.000844 |
| Distance | 0.000960 | 0.000900 | 0.001110 |

a) to analytic solution; b) to solution from value function iteration.

Chapter 5.3

p. 284: equation (5.38) should be

\[
\gamma_0 \left(1 - n_t \right)^{-\gamma_1} \frac{1 - \tau_y w_t \epsilon}{c_t^{-\eta}} = \frac{1}{1 + \tau_c}.
\]

In the paragraph below this equation, in the second line instead of \(\sigma = 1\) it should be \(\eta = 1\).

Chapter 6.3

p. 320: the condition with respect to the stationary interest rate \(r\) should be

\[
r = \alpha Z \left( \frac{N}{K} \right)^{1-\alpha}
\]

p. 325: the transition probability matrices are:

\[
\Gamma(\epsilon' | Z' = Z_g, Z = Z_g, \epsilon) = \begin{pmatrix} 0.9615 & 0.0385 \\ 0.9581 & 0.0419 \end{pmatrix},
\]

\[
\Gamma(\epsilon' | Z' = Z_b, Z = Z_b, \epsilon) = \begin{pmatrix} 0.9525 & 0.0475 \\ 0.3952 & 0.6048 \end{pmatrix}.
\]
Chapter 7.2

p. 405: The lower left panel of Figure 7.11 does not show the impulse response of the aggregate capital stock (it is aggregate consumption). Here is the correct Figure:

Figure 7.11: Impulse responses in the OLG model

Chapter 8.2

p. 431: In the definition of orthogonal polynomials, equation (8.30), the statement “if and only if” refers to the case $i \neq j$ only, i.e., there is no special requirement for the case $i = j$ (except in the definition of orthonormal polynomials).

In equation (8.33), the second line on the right of the brace should read:

$$\frac{\pi}{2} \text{ if } i = j \neq 0.$$  

p. 435: equation (8.44), the upper summation index must be $m$ instead of $n$ and $i, j < m$

Chapter 8.3

p. 445: the first equation on this page should be

$$f(\bar{x} + h) - f(\bar{x} - h) = 2f^{(1)}(\bar{x})h + (f^{(3)}(\xi_1) + f^{(3)}(\xi_2)) \frac{h^3}{6}.$$  

p. 450: the next to last equation should be

$$E(f(z)) := (2\pi\sigma^2)^{-1/2} \int_{-\infty}^{\infty} f(z)e^{-(z-\mu)^2/2\sigma^2}dz.$$
Equation (8.65) should be

\[ E(f(z)) \approx \pi^{-1/2} \sum_{i=1}^{n} \omega_i f\left(\sqrt{2}\sigma z + \mu\right). \]

The next line should be:

For \( i = 2, \ldots, 5 \) the integration nodes \( x_i \) and weights \( \omega_i \) are given in Table 8.2. The Table on this page should be

\[
\begin{array}{ccc}
 n & x_i & \omega_i \\
 2 & -0.7071067811 & 0.8862269254 \\
 & 0.7071067811 & 0.8862269254 \\
 3 & -0.01224744871 & 0.2954089751 \\
 & 0.0000000000 & 1.18163590 \\
 & 0.01224744871 & 0.2954089751 \\
 4 & -1.650680123 & 0.08131283544 \\
 & -0.5246476232 & 0.8049140900 \\
 & 1.650680123 & 0.8049140900 \\
 & 0.5246476232 & 0.08131283544 \\
 5 & -2.02018287 & 0.01995324205 \\
 & -0.9585724646 & 0.3936193231 \\
 & 0.0000000000 & 0.9453087204 \\
 & 2.02018287 & 0.3936193231 \\
 & 0.9585724646 & 0.01995324205 \\
\end{array}
\]

Source: Judd (1998), Table 7.4

Chapter 8.5

Equation (8.76) should be

\[ x_{s+2} = x_{s+1} - \frac{x_{s+1} - x_s}{f(x_{s+1}) - f(x_s)} f(x_s) \]

Second paragraph, FixvMN2 should be FixvMN. The source code of this program is in the file Toolbox.src. The source code of the program FixvMN1 is in the file Ch8_Toolbox.src.

Next to last line: In the definition of the Lipschitz property, the statement should be: "for all \( x^1, x^2 \in \mathcal{N}(x^*) \)."
Chapter 9.2

p. 495: the first element in the second row of the matrix $P^2$ should be 0.09 instead of 0.81.

Chapter 9.4

p. 504: equation (9.19):

$$\min_{(g_t)_{t=1}^T} \sum_{t=1}^T (y_t - g_t)^2 + \lambda \sum_{t=2}^{T-1} [(g_{t+1} - g_t) - (g_t - g_{t-1})]^2.$$ 

p. 505: the entry in the second row and fourth column of the matrix $K$ should be 1 and not zero.