Calculating with our Money Demand Function

Part 1

\[ r_N = r_R + \eta e + r_R \eta e \]

The Basic Model

\[ m_{i,t} = \xi \frac{1 + r_N}{r_N} c_{i,t} \]

The Consumption Fraction

\[ c_{i,j} = \frac{1}{(n-i+1) + \xi(n-i)} z_i \]

Period 1

\[ m_1 = \xi \frac{1 + r_N}{r_N} c_1 \]
\[ c_1 = \frac{1}{4 + 3\xi} z_1 \]

Period 2

\[ c_1 = \frac{1}{4 + 3\xi} z_1 \]
\[ m_1 = \xi \frac{1 + r_N}{r_N} c_1 \]
\[ c_2 = \frac{1}{3 + 2\xi} z_2 \]
\[ m_2 = \xi \frac{1 + r_N}{r_N} c_2 \]
Period 3

\[ c_1 = \frac{1}{4 + 3 \xi} z_1 \quad m_1 = \xi \frac{1 + r_N}{r_N} c_1 \]
\[ c_2 = \frac{1}{3 + 2 \xi} z_2 \quad m_2 = \xi \frac{1 + r_N}{r_N} c_2 \]
\[ c_3 = \frac{1}{2 + \xi} z_3 \quad m_3 = \xi \frac{1 + r_N}{r_N} c_3 \]

Period 4

\[ c_1 = \frac{1}{4 + 3 \xi} z_1 \quad m_1 = \xi \frac{1 + r_N}{r_N} c_1 \]
\[ c_2 = \frac{1}{3 + 2 \xi} z_2 \quad m_2 = \xi \frac{1 + r_N}{r_N} c_2 \]
\[ c_3 = \frac{1}{2 + \xi} z_3 \quad m_3 = \xi \frac{1 + r_N}{r_N} c_3 \]
\[ c_4 = z_4 \quad m_4 = 0 \]

An Illustration

- \( y_2 = $300,000, \ y_3 = $630,000, \ y_1 = y_4 = 0 \)
- \( r_R = 50\%, \ \eta^e = 50\% \)
- \( \xi = 1/3 \)

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Real and Nominal Rates

\( r_N = r_R + \eta^e + r_R \eta^e \)
Fisher’s Law

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- \( \xi = 1/3 \)

\[
r_N = r_R + \eta^e + r_R \eta^e
\]

(Irving) Fisher’s Law

\[
r_N = (0.50) + (0.50) + (0.50)(0.50)
= 1.25
\]