Consumption
Multiple Periods

$C \cong 0.04z$

The Four Period Model

\[
\begin{align*}
  c_1 &= \frac{1}{4} z_1 \\
  c_2 &= \frac{1}{3} z_2 \\
  c_3 &= \frac{1}{2} z_3 \\
  c_4 &= z_4
\end{align*}
\]

An 80 Period Version

\[
c_j = \frac{1}{80 - i + 1} z_i
\]

John and Sally Smith

- Aged 31
- Combined Income of $100,000 a year
- Expect to work until 65
- Expect growth of 3% a year in salary
- Discount rate of 5%
- $250,000 in equity

An 80 Period Version

\[
c_j = \frac{1}{80 - i + 1} z_i \\
  c_{j1} = \frac{1}{80 - 31 + 1} z_{j1} = \frac{1}{50} z_{j1} = 0.02z_{j1}
\]

\[
C \cong 0.04Z
\]
John and Sally Smith

<table>
<thead>
<tr>
<th>1) Initial Assets</th>
<th>2) Interest Income</th>
<th>3) Financial Net Worth</th>
</tr>
</thead>
<tbody>
<tr>
<td>$250,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4) Wage Income</th>
<th>5) PV of Wage Income</th>
<th>6) Wealth</th>
</tr>
</thead>
<tbody>
<tr>
<td>$100,000</td>
<td>$2,500,000</td>
<td>$2,750,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7) Consumption</th>
<th>8) Net Income</th>
<th>9) Saving</th>
<th>10) Assets, End of Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>$55,000</td>
<td>$100,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[ c = 0.02z \]

John and Sally Smith

- John gets a $1,000 bonus. \[ \Delta c = 0.02 \Delta z = $20 \]
- Sally gets a $1,000 raise. \[ \Delta c = 0.02 \Delta z = 0.02(25,000) = $500 \]
- The value of their house rises by $1,000 \[ \Delta c = 0.02 \Delta z = $20 \]
- The value of their mutual fund falls by $1,000 \[ \Delta c = 0.02 \Delta z = -$20 \]

John and Sally Smith

- John gets laid off and loses $25,000 in salary. \[ \Delta c = 0.02 \Delta z = -$500 \]
End