Equilibrium National Income:

Keynesian Cross:

Simplifying Assumptions:
- There is no Government Sector.
- There is no Foreign Sector.
- There is no Depreciation.

\[
GDP + \text{Net Factor Payments from Abroad} = GNP
\]

\[
GNP - \text{Depreciation} = NNP
\]

\[
NNP - \text{Indirect Business Taxes} = NI
\]

\[
GDP = NI
\]

From Producers’ Side:

\[
Y = C + I_i + G + (X-M)
\]

In other words, the producers decide how much of the total production would be investment goods and how much would be consumption good.

\[
Y - I_i = C_i \quad \text{Intended Consumption}
\]

\[
Y = C + I_i \quad \text{Intended Investment}
\]

From Consumer’s Side:

\[
Y = C + S
\]

Consumers’ decide how much of Y (income) they want to consume and how much they want to save.

Consumer’s consumption is determined by the consumption function. Which is,\n
\[
C = a + bY
\]

From Consumer’s side,

\[
Y = C + S, \quad \text{where}\quad C = a + bY
\]

From Producer’s side,

\[
Y = C_i + I_i
\]

If, \( C = C_i \), then \( S = I_i \)

The Economy will be in Macroequilibrium

\[
C = C_i
\]

\[
C = Y - I_i \quad \text{Y = C + I}_i
\]
Actual Investment ($I_a$): Investment spending that producers actually make --- that is, intended investment ($I_i$), plus unintended changes in inventories.

$$I_a = I_i + \Delta \text{ in Inventory}$$

When, $y_i < y^*$

- $C_i < C$  
- $I_i > S$
- $I_a < I_i$

This signals the economy to Expand

When, $y_i > y^*$

- $C_i > C$  
- $I_i < S$
- $I_a > I_i$

This signals the economy to Contract
When, \( I_i > S \)  
This will happen when \( I_a < I_i \)  
Y increases and continues to increase until it reaches equilibrium, where, \( I_i = S \).

When, \( S > I_i \)  
This will happen when \( I_a > I_i \)  
Y falls and continues to fall until it reaches equilibrium where, \( I_i = S \).

\[ \Delta Y = 1000 + 800 + 640 + 512 + 409.6 + 327.7 + \ldots \]  
\[ \Delta Y = 1000 + .8(1000) + (.8)(.8)(1000) + \ldots \]  
\[ \Delta Y = 1000 + .8(1000) + (.8)^2(1000) + \ldots \]

Making of the Income Multiplier:

<table>
<thead>
<tr>
<th>Round</th>
<th>Change in ( I_i )</th>
<th>Output</th>
<th>Income</th>
<th>( C )</th>
<th>( S )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1000</td>
<td>Restringer 1000</td>
<td>800</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Waterbed 800</td>
<td>640</td>
<td>160</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Computer 640</td>
<td>512</td>
<td>128</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Violin 512</td>
<td>409.6</td>
<td>102.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Auto Repair 409.6</td>
<td>327.7</td>
<td>81.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Space Heater 327.7</td>
<td>262.2</td>
<td>65.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[ \Delta Y = 1000 + .8(1000) + (.8)^2(1000) + \ldots \]

\[ S_n = \frac{a}{1-r} \]

\[ \Delta Y = \frac{1000}{1-.8} = \frac{\Delta AE}{1-MPC} \]
Income Multiplier = \[ \frac{1}{1 - MPC} \]

\[ \frac{1}{MPS} \]