Objective

- Go from the production function

Chapter 6: Go to the output supply curve

Chapter 7: Go to the factor demand curve

Download this lecture
I
"the production function"

II
"the resource requirement function"

III
"marginal resource cost function"

IV
\[ \frac{\Delta N}{\Delta R_{GDP}} \]

SRAS
\[ N_C = f(R_{GDP}) \]
Recall your micro

- Theory of the Firm
  - Production Function
    - Cost Function
      - Supply Curve (Output)
      - Demand Curve (Labor)
    - Concise Analytical Statement

\[
\max \bar{\Pi} = \bar{\rho} \ast \Phi(N, \bar{k}) - \bar{w} \ast N - \bar{z} \ast \bar{k}
\]

- Total Revenue
- Variable Costs
- Fixed Costs
Solution

Spreadsheet Approach

<table>
<thead>
<tr>
<th>π</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>a₀</td>
<td>x₀</td>
</tr>
<tr>
<td>b₀</td>
<td>z₀</td>
</tr>
<tr>
<td>c₀</td>
<td>r₀</td>
</tr>
<tr>
<td>d₀</td>
<td>e₀</td>
</tr>
</tbody>
</table>

Parameters:

p = p₀
k = k₀
w = w₀
z = z₀

- vary N; find π

- find π max
  - find N opt
  - find φ opt

- what to produce
  - how much to produce
3. Find supply curve of Q

spread sheet approach

- $W = \bar{W}$
- $P = P_0$

$\bar{P}_0 < \bar{P}_1$

\[
\begin{array}{c|c|c}
\Pi & N & \Pi \\
\hline
\alpha_0 & \kappa_0 & \alpha_1 \\
\beta_0 & \delta_0 & \beta_1 \\
\end{array}
\]

max

Plot the solutions

SRAS

Chap. 8

SRAS

LS6b.max
Find demand curve for labor $N$

- $\bar{p} = \bar{p}_0$
- $W = \bar{w}_0$

\[ \bar{w}_0 < \bar{w} \]

\[ \begin{array}{c|c|c}
\pi & N & \max \\
\hline
a_1 & 2_0 & \text{max} \\
\hline
b_0 & 2_0 & \text{max} \\
\hline
c_0 & 5_0 & \\
\hline
d_0 & 5_0 & \\
\end{array} \]

Plot the solutions

SRDN

Chap. 7
"Employment"
Aggregate Supply

- Movements Along the LAS and SAS Curves

- When the price level rises, holding the money wage rate and other resource prices constant, the quantity of real GDP supplied increases and there is a movement along the SAS curve.