The Production Function

$$Q=AK^{\alpha}L^{\beta}$$

Production Functions

• A production function describes the relation between inputs and outputs.

The Production Function for a Cake

• Inputs
  – Cake mix, one egg, cup of water
  – Use of mixing bowl, spoon, two cake tins, an oven
  – About an hour of time

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Production Functions

• We get technical
  – MRTS
  – Diminishing Returns to Proportion
  – Returns to Scale

Production Functions

• We get technical
• Specify Inputs

Production Functions

- We get technical
- Specify Inputs
- Specify Product

Another View

- Inputs
  - One trip to the bakery

Another View

- Inputs
  - One trip to the bakery
- Outputs
  - One Cake

The Inputs

- As this example suggests, there is more than one way to bake a cake.
- What is the best (cheapest) way?
- We sometimes improperly specify inputs, and that leads us to miscalculate cost.
- Time costs matter here.

A Mini Case

- Joe Smith Widget Works (JSWW) makes red, green and blue widgets. It buys the paint for $1 a widget.

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A Mini Case

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- A new cost accountant has concluded that it can make the paint for 75¢.
- Should it make or buy?

A Mini Case

- Buy
- JSWW has no advantage in making paint. If the numbers show it can make the paint for less, then the numbers are probably wrong.

A Mini Case

- Buy
- JSWW has no advantage in making paint. If the numbers show it can make the paint for less, then the numbers are probably wrong.
- There are some exceptions.
  - Keep paint formula secret
  - Large costs in packaging the paint for shipping to JSWW

What is the product?

- A Cake or a Pleasant Evening?
- A Computer or Computing Services
- An automobile or transportation services

What is the product?

- IBM and the Computer Market
  - IBM initially dominated the market because it had the right level of service.
  - When the PC revolution hit, IBM's service was out of date.

What is the product?

- IBM and the Computer Market
- Automobiles
  - Firms don't sell gas
  - Let independent dealers actually sell and service the cars.

End

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The Production Function