

Production Possibility Curve

Chapter 2-1

Laughter Curve

Q. How many Marxists does it take to screw in a light bulb?

A. None.

The bulb contains within itself the seeds of its own revolution.

Introduction

- An economic system has to solve three coordination problems:
 - What, and how much, to produce.
 - How to produce it.
 - For whom to produce it.

[Introduction]

- All economic knowledge can be boiled down to a single phrase:

There ain't no such thing as a free lunch.

[Introduction]

- Every decision has an **opportunity cost** – the cost in foregone opportunities.

[Introduction]

- A production possibility curve is used to illustrate opportunity cost.

The Production Possibilities Model

- The production possibilities curve shows the trade-offs among choices we make.

The Production Possibility Table

- A *production possibility table* lists a choice's opportunity costs by summarizing what alternative outputs you can achieve with your inputs.

The Production Possibility Table

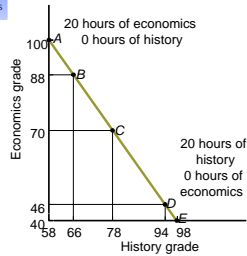
- *Output* – an output is simply a result of an activity.
- *Input* – an input is what you what you put into a production process to achieve an output.

The Production Possibility Curve for an Individual

- A **production possibility curve** measures the maximum combination of outputs that can be achieved from a given number of inputs.
- It slopes downward from left to right.

The Production Possibility Curve for an Individual

Hours of study in history	Grade in history	Hours of study in economics	Grade in economics
20	98	0	40
19	96	1	43
18	94	2	46
17	92	3	49
16	90	4	52
15	88	5	55
14	86	6	58
13	84	7	61
12	82	8	64
11	80	9	67
10	78	10	70
9	76	11	73
8	74	12	76
7	72	13	79
6	70	14	82
5	68	15	85
4	66	16	88
3	64	17	91
2	62	18	94
1	60	19	97
0	58	20	100



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The Production Possibility Curve for an Individual

- The production possibility curve not only represents the opportunity cost concept, it also measures the opportunity cost.

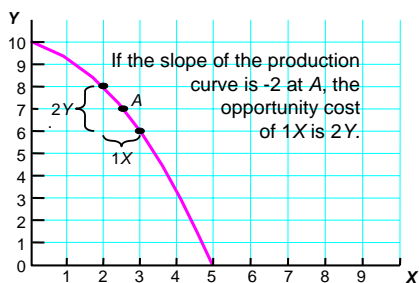
The Production Possibility Curve for an Individual

- The production possibility curve demonstrates that:
 - There is a limit to what you can achieve, given the existing institutions, resources, and technology.
 - Every choice made has an opportunity cost—you can get more of something only by giving up something else.

A Production Possibility Curve for a Society

- The production possibility curve is generally bowed outward.
 - Some resources are better suited for the production of some goods than others.

A Production Possibility Curve for a Society



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A Production Possibility Curve for a Society

- **Comparative advantage** explains why opportunity costs increase as the consumption of a good increases.
 - Some resources are better suited for the production of some goods than to the production of other goods.

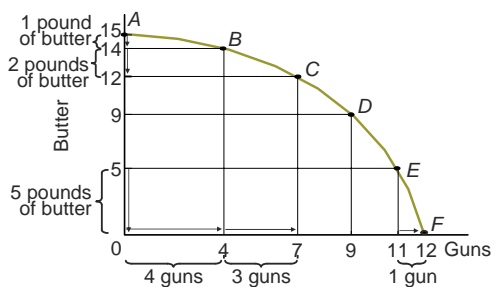
A Production Possibilities Table and Curve

% of resources devoted to production of guns	Number of guns	% of resources devoted to production of butter	Pounds of butter	Row
0	0	100	15	A
20	4	80	14	B
40	7	60	12	C
60	9	40	9	D
80	11	20	5	E
100	12	0	0	F

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A Production Possibilities Table and Curve



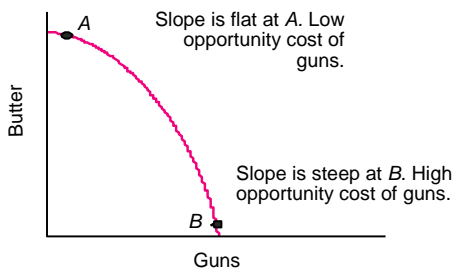
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Increasing Marginal Opportunity Cost

- The *principle of increasing marginal opportunity cost* states that opportunity costs increase the more you concentrate on an activity.
- In order to get more of something, one must give up ever-increasing quantities of something else.

Increasing Marginal Opportunity Cost



Efficiency

- In production, we'd like to have *productive efficiency* – achieving as much output as possible from a given amount of inputs or resources.

Efficiency

- Efficiency involves achieving a goal as cheaply as possible.
- Efficiency has meaning only in relation to a specified goal.

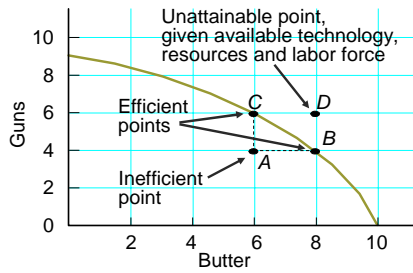
Efficiency

- Any point within the production possibility curve represents ~~inefficiency~~ *inefficiency*—getting less output from inputs which, if devoted to some other activity, would produce more output.

Efficiency

- Any point outside the production possibility curve represents something unattainable, given present resources and technology.

Efficiency and Inefficiency



Shifts in the Production Possibility Curve

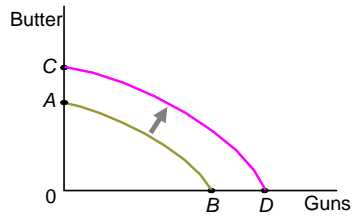
- Society can produce more output if:
 - Technology is improved.
 - More resources are discovered.
 - Economic institutions get better at fulfilling our wants.

Shifts in the Production Possibility Curve

- More output is represented by an outward shift in the production possibility curve.

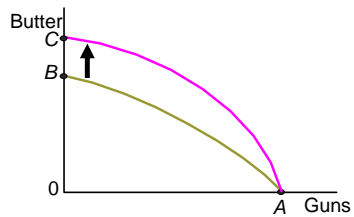
Shifts in the Production Possibility Curve

Neutral Technological Change



Shifts in the Production Possibility Curve

Biased Technological Change



Distribution and Production Efficiency

- The production possibilities curve focuses on productive efficiency and ignores distribution.

Distribution and Production Efficiency

- In our society, more is generally preferred to less and many policies have relatively small distributional effects.

Examples of Shifts in the Production Possibility Curve

- Test your understanding:
 - A meteor hits the world and destroys half the earth's natural resources.
 - Nanotechnology is perfected that lowers the cost of manufactured goods.

Examples of Shifts in the Production Possibility Curve

- Test your understanding:
 - A new technology is discovered that doubles the speed at which all goods can be produced.
 - Global warming increases the cost of producing agricultural goods.

Examples of Shifts in the Production Possibility Curve

