Chapter 25: Production and Growth
Principles of Economics, 6th Edition
N. Gregory Mankiw
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1. Introduction
   a. This is a straightforward and readable chapter.
   b. We are going to start out by looking at the real economy in the long run.
   c. Although not rigorously presented, this is an important chapter.
   d. Over the past century, real GDP per capita has increased at 2 percent per year, which results in income doubling every 35 years.
   e. We proceed in three steps:
      i. We examine international data on real GDP per person.
      ii. We examine the role of productivity.
      iii. We consider the link between productivity and the economic policies that a nation pursues.

2. Economic Growth Around the World
   a. Table 1: The Variety of Growth Experiences. P. 533
      i. Please note Argentina.
   b. FYI: A Picture is Worth a Thousand Statistics, P. 534
      i. Family Size
   c. FYI: Are You Richer than the Richest American? P. 536
      i. Rockefeller may have been rich, but he did not have many of the conveniences that we have today.

3. Productivity: Its Role and Determinants
   a. Why productivity is so important
      i. Def: Productivity is the amount of goods and services produced from each hour of a worker’s time. P. 537
   b. How productivity is determined by
      i. Physical capital is the stock of equipment and structures that are used to produce goods and services. P. 537
      ii. Human capital is the knowledge and skills that workers acquire through education, training, and experience. P. 538
      iii. Natural resources are the inputs into the production of goods and services that are provided by nature, such as land, rivers, and mineral deposits. P. 538
         (1) At one time these were viewed as a dominant reason for prosperity, a view that has changed.
      iv. Technological knowledge is society’s understanding of the best ways to produce goods and services. P. 538
      v. Output increases when you have more inputs and you use them more efficiently.
   c. The production function
      i. FYI: The Production Function, P. 539
   d. Case Study: Are Natural Resources a Limit to Growth? P. 539
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i. Fifty years ago people worried about what we would do when we ran out of tin and copper.
ii. *The prices of most natural resources adjusted for inflation are stable or falling.*

4. Economic Growth and Public Policy
   a. The importance of saving and investment
      i. The data can be confusing because it is not clear whether high investment cause high growth, but it is also possible that high growth causes high investment.
      ii. **Figure 1: Illustrating the Production Function, P. 561**
   b. Diminishing returns and the catch up effect
      i. **Def:** Diminishing returns is the property whereby the benefit from an extra unit of an input declines as the quantity of the input increases. P. 541
         (1) *However, technological progress can neutralize diminishing returns.*
      ii. **Def:** Catch up effect: The property whereby countries that start off poor tend to grow more rapidly than countries that start off rich. P. 541
      iii. There can be periods when there are increasing returns as investments build on each other.
   c. Investment from abroad
      i. An investment is desirable so long as the rate of return exceeds the cost of capital.
      ii. The source of the capital is not important although a local sacrifice is not necessary if the funds are borrowed from abroad.
      iii. When third world countries restrict trade, the investment environment is so bad that wealthy locals shift their capital out of the country.
   d. Education
      i. There are positive externalities, but
      ii. there can be a brain drain.
   e. Health and Nutrition
      i. **In the News : Promoting Human Capital, P. 545**
   f. Property rights and political stability
      i. *This is the key as many of the others follow from it.*
   g. Free trade
      i. Outward oriented policies are better than inward oriented ones.
   h. Research and development
      i. Knowledge is a public good.
   i. Population Growth
i. **In the News : One Economist’s Answer, P. 550**
   (1) The key to economic development is proper incentives supported by the government.

ii. Stretching Natural Resources
    (1) Malthus

iii. Diluting the Capital Stock
     (1) Human Capital

iv. Promoting Technological Progress

5. Conclusion: The Importance of Long Run Growth.

6. Summary