# Chapter 8

## The Structure of the United States Economy

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Last revised August 16, 2006.
Chapter 8: The Structure of the United States Economy

The United States economy is the largest in the world. In 2005 it produced over $12 trillion in final goods and services – close to 30% of total global economic production as measured by traditional national accounting methods. While macroeconomics often considers “the economy” as a whole, such a large and complex national economy as the United States’ cannot be viewed as a homogenous entity. Different parts of a national economy pursue different goals, respond to different incentives, and are affected by different circumstances. We’ve already considered some ways to classify a macroeconomy into slightly smaller units. We defined the three economic spheres in Chapter 3: the core, business, and public purpose spheres. We saw in Chapter 5 that the U.S. national accounts classify the economy into four sectors: households and institutions, businesses, government, and the foreign sector.

In order to gain a deeper understanding of how a macroeconomy functions and changes over time, in this chapter we take a look at the U.S. economy – especially the business sphere – in slightly more detail. One implication of studying economics “in context” is that explanations for macroeconomic growth and fluctuation often require looking at history. The economy of the United States has not only grown over time, it has also changed. In this chapter we will consider how the economy has changed, delving into issues such as the relative decline (in certain terms) of farming and manufacturing, and the relative and absolute growth of services.

1. The Three Major Productive Sectors in an Economy

In the United States system of national accounts, the economy is divided into sectors based on who produces goods and services. We now turn to classifying the economy based on what is being produced. Economists still use the term “sectors” in this new classification scheme – but you’ll need to remember that these sectors are not the same ones discussed back in Chapter 5.

Any national economy can be broadly classified into three productive economic sectors: primary, secondary, and tertiary. The primary sector involves the harvesting and extraction of natural resources and rudimentary processing of these raw materials. Industries in the primary sector include agriculture, commercial fishing, mining, and the timber industry. Generally, the products produced in the primary sector are not sold directly to households for final consumption but are sold to manufacturers as inputs. For example, the wheat grown, harvested, sorted, and dried in the primary sector would be sold to milling and baking companies in the secondary sector, which would then process the wheat into bread.

**Primary sector:** the sector of the economy that involves the harvesting and extraction of natural resources and simple processing of these raw materials into products which are generally sold to manufacturers as inputs
The **secondary sector** involves converting the outputs of the primary sector into products suitable for use or consumption. The secondary sector includes manufacturing industries such as aerospace, automobile production, the chemical industry, petroleum refining, the pharmaceutical industry, and electronics production. It also includes the construction of buildings and highways and utilities such as those that generate and distribute electricity.

**Secondary sector**: the sector of the economy that involves converting the outputs of the primary sector into products suitable for use or consumption. It includes manufacturing, construction, and utilities.

Finally we have the **tertiary sector**, also called the service sector. This sector involves the provision of services rather than tangible goods. The tertiary sector includes such services as the transportation, marketing, and retailing of physical goods. It also includes direct services without the distribution of any physical goods, such as consulting, education, technology, administration, and tourism.

**Tertiary sector**: the sector of the economy that involves the provision of services rather than of tangible goods

Firms in the business sphere of the economy are distributed among all of these sectors. Entities from the public purpose and core spheres can also be classified into one or more of these three sectors. For example, a household growing food in a garden is contributing to the primary sector, even though this activity is not measured in traditional national income accounting. Most of the work of government and non-profit organizations is accounted for in the tertiary sector.

Recognizing the limitations of national accounting presented in Chapter 5, such as the exclusion of household production and environmental services, we can nonetheless use National Income and Product Accounts (NIPA) data to gain some perspective on the relative size of the three sectors. The NIPA data published by the United States Bureau of Economic Analysis measures the contribution of different industries towards total gross domestic product. We can assign each of these industries into one of the three sectors presented in this chapter.

As we can see in Table 8.1 the U.S. economy is dominated by the private tertiary sector (64% of the total economy). Since the majority of government activities also involve the provisioning of services, this would imply that about three-quarters of the U.S. economy is comprised of services. Does this mean that the other sectors are relatively unimportant? No – clearly the tertiary sector relies heavily on outputs from the other two sectors. Consider, for example, that a restaurant would not be able to provide food services without meat and vegetable products from agriculture, a building produced by the construction industry, furniture made from wood products and manufactured as durable goods, etc.
Table 8.1 ValueAdded by Sectors, 2004, billions of dollars

<table>
<thead>
<tr>
<th>Industry</th>
<th>Value Added</th>
<th>Percent of GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary Sector</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agriculture, forestry, and fishing</td>
<td>117</td>
<td>1.0</td>
</tr>
<tr>
<td>Mining</td>
<td>148</td>
<td>1.3</td>
</tr>
<tr>
<td><strong>Primary Secondary Total</strong></td>
<td>264</td>
<td>2.2</td>
</tr>
<tr>
<td><strong>Secondary Sector</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Utilities</td>
<td>241</td>
<td>2.1</td>
</tr>
<tr>
<td>Construction</td>
<td>541</td>
<td>4.6</td>
</tr>
<tr>
<td>Durable goods manufacturing</td>
<td>863</td>
<td>7.4</td>
</tr>
<tr>
<td>Nondurable goods manufacturing</td>
<td>631</td>
<td>5.4</td>
</tr>
<tr>
<td><strong>Secondary Sector Total</strong></td>
<td>2,277</td>
<td>19.4</td>
</tr>
<tr>
<td><strong>Tertiary Sector</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wholesale trade</td>
<td>688</td>
<td>5.9</td>
</tr>
<tr>
<td>Retail trade</td>
<td>798</td>
<td>6.8</td>
</tr>
<tr>
<td>Transportation and warehousing</td>
<td>339</td>
<td>2.9</td>
</tr>
<tr>
<td>Information</td>
<td>547</td>
<td>4.7</td>
</tr>
<tr>
<td>Finance and insurance</td>
<td>972</td>
<td>8.3</td>
</tr>
<tr>
<td>Real estate and rental and leasing(^1)</td>
<td>1,451</td>
<td>12.4</td>
</tr>
<tr>
<td>Professional, scientific, and technical services</td>
<td>792</td>
<td>6.7</td>
</tr>
<tr>
<td>Management of companies and enterprises</td>
<td>214</td>
<td>1.8</td>
</tr>
<tr>
<td>Administrative and waste management</td>
<td>336</td>
<td>2.9</td>
</tr>
<tr>
<td>Educational services</td>
<td>100</td>
<td>0.9</td>
</tr>
<tr>
<td>Health care and social assistance</td>
<td>804</td>
<td>6.9</td>
</tr>
<tr>
<td>Arts, entertainment, and recreation</td>
<td>112</td>
<td>1.0</td>
</tr>
<tr>
<td>Accommodation and food services</td>
<td>308</td>
<td>2.6</td>
</tr>
<tr>
<td><strong>Tertiary Sector Total</strong></td>
<td>7,460</td>
<td>63.6</td>
</tr>
<tr>
<td>GDP Attributed to Government</td>
<td>1,458</td>
<td>12.4</td>
</tr>
<tr>
<td><strong>Economy Total</strong></td>
<td>11,735(^2)</td>
<td>100.0(^2)</td>
</tr>
</tbody>
</table>


\(^1\) The category of “real estate” included in the tertiary sector differs from “construction” (in the secondary sector), because it refers to the services of existing structures, as well as to the services provided by those who help people buy, sell, or lease properties. Real estate appears to be the largest single industry listed in Table 8.1, accounting for 12.4% of GDP. This is an artifact of the way GDP is calculated. As mentioned in the chapters on national accounts, GDP includes the non-marketed value of services that are provided by owner-occupied housing—the value of the housing services that owners “rent to themselves.” The fact that this was nearly 8% of GDP in 2004 accounts for the high total value-added figure for the real estate industry.

\(^2\) The total for GDP is greater than the sum of GDP for the three private sectors and government because the total includes additional industries not classified separately.
The relative magnitude of the three sectors has changed over time in the United States. Figure 8.1 shows the share of the U.S. private economy (excluding government) attributed to each of the three sectors since the late 19th century. While the tertiary sector has been the dominant sector of the private economy for as long as reliable data are available, its share has risen steadily in the last several decades. The primary sector share was about 20 percent of the private economy in the late 1800s but declined during most of the 20th century to its current share of only about 3%. Meanwhile, the share of the private economy attributable to the secondary sector generally rose after the Great Depression until peaking at about one-third of the economy in the 1950s and 1960s. However since the late 1960s the secondary sector’s share has steadily declined, falling to only 22% in 2003.


Figure 8.1 Share of United States Private Economy by Sector, 1869-2004

Note that this graph shows relative, not absolute, magnitudes. The relative size of the three sectors has changed over time, but throughout the history of the United States the tertiary sector has dominated.

In addition to assessing the relative importance of each sector based on GDP shares, we can also consider employment as a measure of significance. Employment is even more concentrated than GDP in the tertiary sector, with 83% of all workers. The primary sector, meanwhile, employs less than 1% of all workers in the United States.

83% of all employed workers in the United States are engaged in production of services. 17% work in industries that produce tangible goods, with fewer than 1% of all U.S. workers engaged in the primary sector work of harvesting and processing natural resources.
Using the data in Figure 8.1, we can now tell a simple story of how economic growth in the United States has proceeded since the late 1800s. During the first part of this period, up to about 1920, all sectors grew at approximately the same rate. Then, between about 1920 and the early years of the Depression, the relative share from the tertiary sector increased while the other two sectors declined. As the economy began to recover from the Depression, the secondary sector took off while the tertiary sector went into a relative decline. This trend continued as the demands of World War II fueled industrial growth. During the post-war period, industrial growth remained strong while the relative share of the primary sector declined. Finally, since the 1960s the secondary sector has declined while the tertiary sector has been the fastest-growing sector – a trend that is likely to continue in the 21st century.

In spite of the dramatic data shown in Figure 8.1, with the associated employment figures, we should not conclude that the primary sector is unimportant in the U.S. economy. On the contrary, the primary sector remains the ultimate source for our food, fibers, and construction materials. In relatively simple economies the production chains for these things can be short, turning logs into homes, or wool or plant fibers into clothing, with far fewer people involved in intermediate steps than is normally the case today. At higher levels of industrialization the number and complexity of production steps increases, leading to an increase in the value added that is attributed to the secondary and tertiary sectors.

Although industrialization generally coincides with a declining share of national income going to the primary sector, this does not imply that a society’s needs for the products of the primary sector have decreased. If anything, increasing levels of industrialization have tended to be associated with an increasing absolute demand for minerals, food, energy, and other primary sector products. But the technological improvements that come with industrialization mean that products from the primary sector can be obtained with fewer workers. Thus the share of national income going to the primary sector falls even as a society uses more and more natural resources.

The preceding paragraphs explain the primary sector’s decline as a proportion of GDP and of national employment, relative to manufacturing. It is not so obvious how or why the tertiary sector has risen so markedly, to absorb over 70% of private sector GDP, not only in the United States, but in many other rich countries such as Australia, France, and Denmark. That part of the story will be discussed in the last section of this chapter.

Discussion Questions

1. Think about the businesses and industries in your community. Can you list several businesses that would be classified into each of the three sectors described above? Does your answer to this question concur with the notion that the majority of economic activity takes place in the tertiary sector?

2. Consider the following statement: “Global climate change will mainly impact primary sector industries such as agriculture, forestry, and fishing. Given that these industries
only account for a couple of percent of U.S. GDP, the overall economic impact of climate change on the United States will therefore be very small.” Do you agree with this statement? Can you present a counter argument?

2. Natural Resources: The Primary Sector

For most of human history, people obtained food, tools, and other products directly from their natural environment. Today, most people in industrial countries have no direct connection with the complex chain of events that convert raw natural resources into the products we use and consume every day. While modern technology can mask this process, one thing remains the same – every physical good ultimately can be traced back to component natural resources.

While the United States and other industrial countries have become increasingly service-oriented, this has not shielded these nations from macroeconomic variability arising from disturbances to primary sector industries. This is most apparent with industrial nations’ dependence on fossil fuels. Significant reductions in global oil supplies can quickly remind us that modern economies are still ultimately dependent on the natural world. We now take a more detailed look at the primary sector, beginning with agriculture.

2.1 The Food System

Throughout its early history, the United States was an agrarian economy. In the late 1700s approximately 90% of the labor force was composed of farmers. By 1880, farmers still made up about half the labor force. Now less than 1% of the U.S. workforce is directly employed in agriculture. During the 20th century agriculture in the United States underwent dramatic changes. Major trends included a decline in the total farm population, a decrease in the total number of farms, an increase in average farm size, and increasing agricultural productivity (i.e., output per acre, as well as output per worker.)

Agricultural productivity has increased as human labor has been replaced by mechanization and as the use of agricultural chemicals and other technologies has spread. For example, in the last 100 years average corn yields in the United States have risen from around 25 to 140 bushels per acre, and wheat yields are up from 12 to 40 bushels per acre. One American farmer now provides enough food and clothing for about 130 people.

As discussed in Chapter 3, natural capital is an important source of economic productivity that can be depleted or degraded depending on a society’s level of resource maintenance. The productivity of the primary sector is particularly dependent on natural capital. Degradation of natural capital, such as soil quality and supplies of water for irrigation, can reduce agricultural output per acre, although to some extent these problems can be offset with produced capital such as chemical fertilizers and bioengineered seeds.
A particularly serious threat to agricultural productivity in the U.S. is the depletion of groundwater supplies. Agriculture is responsible for about four-fifths of the water use in the U.S., primarily to irrigate crops in Western states. Over one-third of the irrigation water used in the country comes from groundwater aquifers, which are renewable resources that recharge very slowly and can become depleted when withdrawals exceed the rate of natural recharge. Currently, the United States is withdrawing groundwater approximately four times faster than it is being replenished. States particularly dependent on groundwater for irrigation include Texas, Kansas, and Nebraska, which rely upon water from the Ogallala Aquifer, the world’s largest known aquifer. The water table for the Ogallala Aquifer is declining up to two feet per year, and water supplies from the aquifer have already become exhausted in some areas. The declining water table in the aquifer has motivated increased use of efficient irrigation practices, but over time many more areas will lose access to the aquifer. Most likely these areas will either need to switch to different crops that require less water or be removed from agricultural production.

One aspect of American farming that has remained relatively constant is the total land area devoted to agriculture. As we see in Figure 8.2, the decline in the total number of farms during most of the 20th century has been offset by an increase in average farm size. Since the early 1900s the total farmland in the United States has remained around one billion acres. Currently occupying 42% of the entire land area of the U.S., agriculture continues to dominate the geographic landscape of the country. This is particularly evident in the Midwest where about 90% of the land area of some states, such as Kansas and Iowa, is devoted to agriculture.

There are about two million farms in the United States, but a small number of very large farms produce the most of country’s agricultural products. About 92% of the nation’s farms are classified by the United States Department of Agriculture as “small family farms” – those with annual sales of $250,000 or less. However, these small farms produce less than one-third of the nation’s agricultural output. Meanwhile, farms with annual sales of over $1 million (only about 1% of all farms) account for nearly half of the value of agricultural production. The largest farms in the country tend to be owned as corporate enterprises with annual sales in the millions of dollars.

Farm receipts in the United States are approximately evenly divided between livestock and crops. The most important crops in the country are, in order of sales: corn, soybeans, wheat, hay, and cotton. The majority of the grain produced in the U.S. (61% in 2003) is not directly used for human consumption but is fed instead to livestock.
Figure 8.2 Number of Farms, Average Farm Size, and Total Land in Farms, United States, 1850-2002

The decline in the total number of farms since the early 1900s has been offset by an increase in average farm size, leaving the total land in farms relatively constant.

Most of the agricultural products that people consume are not obtained directly from farmers but undergo significant processing prior to being sold to consumers. As we see in Figure 8.3, only about 19 cents of every dollar spent on food in the United States is paid to farmers. The remainder is spent for processing, marketing, and other costs. Thirty-eight cents out of each dollar pays off-farm workers in manufacturing, wholesaling, retailing, and eating establishments. About eight cents of every food dollar is spent on packaging, and four cents on advertising.

Figure 8.3 suggests that the impact of agriculture extends well into the secondary and tertiary sectors. Even though few people are directly employed in agriculture, nearly 20% of all American jobs can be considered dependent on agriculture. Most of these jobs are in wholesaling, retailing, or food services.
2.2 The Energy System

Modern production and consumption systems require energy – a lot of energy. The United States is by far the world’s largest consumer of energy. While it has less than 5% of the world’s population, it uses about one-quarter of the world’s energy. This is currently more than twice the amount of energy used by China, the next highest energy consumer (and a country whose population is about three times larger). The United States has one of the highest per capita energy usage rates in the world, exceeded only by a few nations such as the high-latitude countries of Canada, Norway, and Iceland.

We can also compare nations by looking at the amount of energy used per dollar of GDP. A low number is generally indicative of an economy that is energy efficient in its production processes. The United States is about average among all nations in the energy efficiency of production – more efficient than Finland or Canada, but less efficient than Switzerland, Ireland, or Japan.

Figure 8.4 presents two ways of classifying energy use in the United States. One approach considers the source of the energy. We can see that this country is heavily dependent on fossil fuels; petroleum is the single most important energy source, and carbon-based fossil fuels (petroleum, coal, and natural gas) provide 86% of all energy used in the country. Coal, often viewed as a fuel from an earlier industrial age, is still the primary fuel for electricity generation in the United States – the source of more than half
of the nation’s electricity in 2004. Meanwhile, petroleum provides nearly all the fuel for transportation. As no new nuclear power plants have been ordered in the United States since 1978, the current trend is for the national share of energy derived from nuclear power to decline in the future as aging plants are decommissioned. The United States currently obtains a small share of its energy from renewable resources, but a recent notable development is the rapid growth in the utilization of wind power. From 1998 to 2004 energy generated by wind power expanded by 361% – the fastest-growing energy source in the country. However, as planners look on a global scale at future anticipated gaps between energy demand and supply, it appears that the potential for wind energy is not nearly as great as the possibility that solar and/or nuclear power may fill the gaps.

Another way to look at energy consumption is to consider how it is used. As shown in Figure 8.4 industry is the largest consumer of energy – about one-third of total usage. The share of energy used by industry has declined in recent decades. (It approached 50% in the mid-1950s.)


Figure 8.4 Energy Consumption in the United States, by Source and Use, 2003
The United States obtains its largest share of energy from petroleum, and uses energy mostly for industry and transportation.
The United States is not only the world’s major consumer of energy; it is also the largest producer. In 2004 the United States produced 16% of the world’s energy, more than any other top producer, including China (13%), Russia (12%), Saudi Arabia (5%), and Canada (4%). The United States is the world’s largest producer of energy from nuclear power, second behind China in producing power from coal, and behind only Saudi Arabia and Russia in producing energy from petroleum. Germany and Spain are larger producers of wind energy, while Japan has taken the lead in implementing the still relatively young solar technologies.

While energy use permeates every aspect of economic activity, the production of energy employs less than a million workers, or about 0.5% of the workforce, and directly contributes a similar small share to GDP. Yet fluctuations in energy supply and prices can have significant impacts on economy-wide variables such as GDP growth, inflation, and employment. Increases in energy prices lead to downstream increases in the price of many other products and higher inflation rates. Dramatic energy price increases in recent decades, particularly in the price of oil, have precipitated recessions both at the national and international levels.

In the 1950s the country was essentially energy-independent, obtaining only about 15% of its oil from imports. At the onset of the first energy crisis in 1973 the United States had come to rely on imports for about 35% of its oil. In 2005 this percentage had reached 60%, with the United States Department of Energy forecasting that imported oil will provide over 70% of supply by 2030.

A common fallacy is that the United States obtains most of its imported oil from the Middle East. In fact, only about one-quarter of the nation’s oil imports come from the Middle East. The top two nations for oil imports in 2005 were Canada and Mexico, with Saudi Arabia being the third largest supplier. Other important sources of foreign oil include Venezuela, Nigeria, and Angola.

2.3 Other Primary Industries

Other industries in the primary sector include mining, timber harvesting, and commercial fishing. These industries are relatively small in terms of their employment and contribution to GDP.

Non-fuel mining in the United States employed approximately a quarter of a million workers in 2003. Over half of these workers were employed in the mining of just two commodities: aluminum and crushed stone. The most important states for mining are California, Nevada, Arizona, and Texas.

Only about 70,000 workers in the United States were directly employed in forestry and logging industries in 2003. However, like other primary sector industries, forestry products provide the inputs for many secondary and tertiary industries. About 1.1 million workers are employed in the country in manufacturing industries based on forest
products – about half in the production of wood products such as plywood and construction wood, and half in the production of paper and cardboard.

Currently about one-third of the United States is covered with forests. The country has, however, lost the majority of its old-growth forests. Only about 5% of the nation’s old-growth forests remain, primarily located on public lands in the Pacific Northwest. The dwindling supply of highly-profitable old-growth trees available for harvesting in the Western states has resulted in a geographical shift of the timber industry. Timber harvesting in the Pacific Northwest declined by nearly 50% between 1976 and 2001, while harvesting in the Southeast increased by 50% during the same time period. The top timber harvesting states in the country in 2002 were (in order): Georgia, Alabama, Mississippi, Louisiana, and North Carolina.

The other major industry in the primary sector is commercial fishing. The United States National Marine Fisheries Service estimates that the fishing industry contributed $32 billion in value-added to the national economy in 2004 (about 0.3% of the total). The leading states for fishery products in 2004 were (in order by value of catch): Alaska, Massachusetts, Maine, Louisiana, and Washington. The most valuable species are shellfish including shrimp, crabs, and clams, followed by salmon and halibut.

Total fishery catch in the United States was approximately constant at around five billion pounds annually from the 1950s to the mid-1970s. Then the annual harvest steadily rose, reaching more than ten billion pounds in the early 1990s and falling slightly since then to around 9.5 billion pounds in 2003. In a 1999 report the federal government estimated that 22% of the fishery stocks in the country were “overutilized” – meaning harvest levels are above the sustainable level. Another 39% were “fully utilized” – already being harvested at the maximum sustainable level.4

Discussion Questions

1. What food did you eat for your most recent meal? Discuss the production steps that were required to get that food to you. Where do you think the food initially came from? What type of processing was required? How was the food transported? Who do you think profited the most from your food purchase?

2. We learned in this section that the United States is not only the world’s largest consumer of energy, it also has one of the highest per capita rates of energy use. But we’ve also learned that the United States is supposedly a service-oriented country. How can this be? Do you think a country that becomes more service-oriented necessarily must use more energy? Can you describe how a country might become more service-oriented while using less energy?

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3 Old-growth forest is broadly defined as a forest containing trees in all stages of maturity, including a significant amount of dead and decaying trees. The actual age required for a forest to be considered old growth varies depending on the ecosystem.

4 A further 13% of fishery stocks were considered underutilized while the status of 27% of the stocks was classified as unknown.
3. The Production of Goods: The Secondary Sector

As we mentioned already in this chapter, the secondary sector in the United States has been declining as a percentage of GDP since the 1960s. But before we conclude that manufacturing has fled to other countries (an idea that we’ll discuss in section 3.3), we should note that the United States remains the world’s largest goods manufacturer. In 2004 American manufacturers produced about $1.5 trillion worth of goods (measured as value-added). This total is still 70% larger than the world’s second-largest manufacturer (Japan) and over three times larger than the value of goods produced in China. In fact, the United States produces about one-quarter of the global value of goods manufactured each year.

The secondary sector is broadly classified into several sub-sectors: durable goods manufacturing, nondurable goods manufacturing, the construction and housing industry, and utilities. In this section we will only discuss construction and housing, and manufacturing. Then, focusing on the latter, we will address the questions that are often asked in contemporary news discussions: Why is the manufacturing sector losing jobs, and where are those jobs going?

3.1 Construction and Housing

In 2004 there were over eight million individuals working in the construction industry. The majority of these over half were classified as contractors, including plumbers, electricians, roofers, and carpenters. Unlike most industries where the majority of workers are employees, most contractors are self-employed.

The primary factor affecting the construction and housing industry is the cyclical behavior of the domestic economy. During periods of recession, the construction industry can be particularly hard hit. The number of private housing starts each year vividly illustrates the cyclical nature of the construction industry. Figure 8.5 shows that the number of housing starts can decline significantly during recessionary periods but recover once a recession is over. (The data follow housing starts since only the flow of newly constructed housing, not the level of the pre-existing stock of housing, count in measuring the production of the secondary sector.)

Despite cyclical variations in housing starts, a number of trends have continued in the housing industry. One is that the average size of new single-family homes has increased, doubling in size between 1970 and 2005. While houses are getting bigger, the average number of people living in them has decreased. In the 1950s there was an average of 3.4 people per household, while in 2004 this had fallen to 2.6 people.
Figure 8.5 Annual Number of Private Housing Starts in the United States, 1965-2004

The number of private housing starts decline significantly during recessionary periods (indicated by the gray-shaded areas) and recover once a recession is over.

Another relatively consistent trend is that housing prices tend to increase at a faster rate than prices in general; this been true at least since 1940 since the U.S. Census Bureau has been collecting data from the U.S. Census of Housing. The median price of an existing single-family home in the United States at the end of 2005 was about $225,000. This represents a doubling of home prices since 1995, even though the consumer price index only rose 28% during this period. Of course, housing prices vary dramatically across different regions of the country. In 2004 the most expensive housing was in the San Francisco Bay area where the median price of an existing single-family home was $642,000. The most affordable metropolitan area in 2004 was Austin, Texas where the median home price was $155,000.

Despite rapidly rising house prices, the percentage of Americans who own their own home has gradually increased. In 2004 69% of households owned their own home, up from 64% in 1985 and 63% in 1965. Again, there are regional variations in home ownership rates. Rates tend to be highest in the Midwest (where housing prices are the lowest) and lowest in the West (where housing prices are the highest). Home ownership

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5 The consumer price index (CPI-U) represents the average prices paid by urban consumers for a market basket of consumer goods and services.
6 Owning a home is defined as either outright ownership or mortgaged with a loan.
rates also vary by the race of the householder. While about 72% of white householders owned their own homes in 2004, only 48% of black and 46% of Hispanic householders owned their own homes. Home ownership rates are also much higher for married couples and older householders than for younger, single people.

The construction and housing industry not only includes home construction but also the construction of highways, bridges, office buildings, power and communication lines, and public buildings. Of the approximately $1 trillion of new construction put in place in 2004, 55% was private residential construction, 23% was private non-residential construction, and 22% was public construction. The biggest categories of private non-residential construction are commercial buildings, office buildings, and health care buildings. Public construction primarily includes educational facilities and highways.

3.2 Manufacturing

In 2003 there were about 350,000 manufacturing enterprises in the United States. All together they employed about 14.3 million people, or 11% of all workers. Table 8.2 presents a summary of the production and employment in major manufacturing and construction industries in the country, based on data from 2003. No single manufacturing industry dominates, but the top industries include transportation equipment (mostly automobiles), computers and electronics, chemicals, and food. We will discuss just two: textiles and automobiles.

Textiles In the 1800s the textile and apparel industry arose as this country’s first large-scale manufacturing industry, with the majority of the mills located in the Northeast. The mills initially employed mostly women and girls, but increasingly switched to immigrant labor when the women organized unions and pushed to limit the work day to 10 hours. The textile industry expanded rapidly, becoming the largest manufacturing employer in the country by the start of the 20th century. In 1920 there were nearly two million workers in the industry. Then, faced with foreign competition, particularly from Japan, the industry stopped expanding. Employment in the American textile industry remained around two million workers for the next 50 years or so.

Since the 1970s the textile and apparel industry in the United States has been decimated – employment in the industry is down about 65% and the decline appears likely to continue into the future. The international textile industry has changed rapidly in just the last few years and further changes are anticipated. Imports from China are at the center of the debate on manufacturing jobs losses in the United States. In 2002 import quota restrictions were removed from 29 categories of apparel. In just two years China more than doubled its exports of textiles and apparel to the U.S.. Chinese imports can be produced at lower cost than domestic goods primarily because of lower wages. The textile industry is China’s largest manufacturing employer as well as its lowest-paying, with average wages below $1 per hour. Further reduction of quota restrictions under a

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7 Job losses in the textile and apparel industry in other developed nations (France, Germany, Japan, U.K.) have been even more severe. (“A New World Map in Textiles and Clothing: Adjusting to Change,” OECD, 2004)
World Trade Organization agreement suggests that American imports of textiles and apparel will continue to increase. American textile and apparel manufacturers are warning that their industry could be essentially eliminated by the end of the decade unless trade policy halts the growth of imports from China.

Table 8.2 Manufacturing Industries in the United States, 2003, Production and Employment

<table>
<thead>
<tr>
<th>Industry</th>
<th>Value Added (billions of dollars)</th>
<th>Employment (thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Durable Goods Industries</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computers and electronics</td>
<td>148</td>
<td>1,355</td>
</tr>
<tr>
<td>Fabricated metals</td>
<td>112</td>
<td>1,479</td>
</tr>
<tr>
<td>Furniture</td>
<td>29</td>
<td>573</td>
</tr>
<tr>
<td>Machinery</td>
<td>96</td>
<td>1,149</td>
</tr>
<tr>
<td>Transportation equipment</td>
<td>190</td>
<td>1,774</td>
</tr>
<tr>
<td>Other durable goods</td>
<td>223</td>
<td>2,633</td>
</tr>
<tr>
<td><strong>Durable Goods Total</strong></td>
<td>798</td>
<td>8,963</td>
</tr>
<tr>
<td><strong>Nondurable Goods Industries</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemical products</td>
<td>182</td>
<td>906</td>
</tr>
<tr>
<td>Food, beverages, and tobacco</td>
<td>173</td>
<td>1,717</td>
</tr>
<tr>
<td>Paper products</td>
<td>52</td>
<td>516</td>
</tr>
<tr>
<td>Petroleum and coal products</td>
<td>38</td>
<td>114</td>
</tr>
<tr>
<td>Textiles, apparel, and leather products</td>
<td>47</td>
<td>797</td>
</tr>
<tr>
<td>Other nondurable goods</td>
<td>112</td>
<td>1,497</td>
</tr>
<tr>
<td><strong>Nondurable Goods Total</strong></td>
<td>604</td>
<td>5,547</td>
</tr>
<tr>
<td><strong>Construction and Housing Industries</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building construction and development</td>
<td>NA</td>
<td>1,492</td>
</tr>
<tr>
<td>Highway and utility construction</td>
<td>NA</td>
<td>911</td>
</tr>
<tr>
<td>Contractors (plumbing, electrical, carpentry, etc.)</td>
<td>NA</td>
<td>3,979</td>
</tr>
<tr>
<td><strong>Construction and Housing Total</strong></td>
<td>501</td>
<td>6,381</td>
</tr>
<tr>
<td><strong>Utilities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electric power generation and distribution</td>
<td>NA</td>
<td>539</td>
</tr>
<tr>
<td>Natural gas distribution</td>
<td>NA</td>
<td>93</td>
</tr>
<tr>
<td>Water, sewer, and other systems</td>
<td>NA</td>
<td>46</td>
</tr>
<tr>
<td><strong>Utilities Total</strong></td>
<td>222</td>
<td>738</td>
</tr>
</tbody>
</table>


8 The Census Bureau does not estimate details of the value added from the construction industry.
9 Employment data for utilities are from 2002.
10 The Census Bureau does not estimate details of the value added from the utility industry.
Textiles and clothing are outstanding examples of a category of manufactured items which (1) contain a large labor component (i.e., their production requires a large number of labor hours in proportion to the cost of other inputs such as manufactured or natural capital), and (2) can be produced with large numbers of unskilled laborers. These characteristics create conditions in which countries with large populations of poor people can compete on the international market.

Automobiles In contrast to textiles, the automobile industry in the United States has benefited from a number of factors. One was the “first-mover advantage” gained by the leadership of Ford and others who innovated and created strong industries before most foreign competitors. Another was the transaction cost involved in shipping automobiles long distances, creating a cost disadvantage for foreign producers. In addition, for a long time the technology of automobile production was such that the greater productivity of more skilled workers enabled them to compete against lower-wage workers who had less education, training and skill (summarized in many economic discussions as “human capital”).

The first challenge to the preeminence of the United States’ auto companies for its enormous home market came with the oil crises of the 1970s. This motivated a surge in imports of high-quality, fuel-efficient vehicles from Japan. By 1980 the Japanese automobile industry, virtually non-existent 20 years earlier, had captured over 20% of the U.S. market. The impact of this first wave of foreign competition on the domestic motor vehicle industry was severe. Between 1977 and 1982 employment in the industry declined 30%. In the early 1980s Chrysler was on the verge of bankruptcy and was only saved by financial assistance from the federal government.

However the domestic automobile industry recovered relatively quickly, for several reasons. First, United States automobile manufacturers improved the quality of their vehicles, often either emulating Japanese production methods or forming joint ventures with foreign producers. Another factor was the decline in gasoline prices after the 1970s oil crises, which shifted demand back towards larger domestic vehicles. Sales of pickup trucks and sport utility vehicles, initially produced almost exclusively by American companies, increased dramatically in the 1980s and 1990s.

Another important reason that employment in the American motor vehicle industry rebounded was that foreign companies began locating some of their production facilities in the United States. The number of vehicles manufactured in the United States by Japanese and European firms increased by a factor of 16 between 1982 and 1990. Reasons for foreign firms producing vehicles in the United States include public relations, comparable labor costs, lower transportation costs, and avoidance of tariffs and quotas. While motor vehicle production for the domestic companies remains centered in Detroit, foreign companies have built factories throughout the country. As of 2006, Honda was producing vehicles in Ohio and Alabama, Toyota had factories in Kentucky, Indiana, and Texas, and Nissans were being manufactured in Tennessee. As a compelling example of the extent of globalization, BMW manufactures its Z4 and X5 vehicles
exclusively at its factory in South Carolina for distribution not only in the United States but throughout the world. Current employment in the motor vehicle industry (around one million workers) is greater than it was before the onslaught of foreign competition. However, as noted in the “News in Context” box below, the quality of these jobs, as experienced by the workers, is declining.

**News in Context: Ford Eliminating Up to 30,000 Jobs and 14 Factories**

The Ford Motor Company said Monday that it would close as many as 14 factories and cut up to 30,000 jobs over the next six years. It was the latest move in a fundamental restructuring of Detroit's traditional auto companies, hit hard by foreign competitors, who have taken more than 40 percent of the American market.

Including cuts that took place at the Chrysler Corporation, the Big Three automakers have eliminated or announced plans to eliminate nearly 140,000 jobs since 2000, including salaried positions. That is about one-third of their North American payroll, a rollback to a work force size not seen since the end of World War II. "This may not be the end, but it is certainly the beginning of the end of the automobile industry as we knew it," said Gary N. Chaison, a professor of industrial relations at Clark University in Worcester, Mass.

While the Big Three are visibly shrinking, their combined moves do not spell the end of automotive manufacturing in the United States. But the geographic footprint has largely shifted south, where a new auto industry is flourishing. Japanese, German and South Korean companies now employ 60,000 people, or about the same number by which Ford and G.M. have said they will shrink. But foreign makers are creating a younger, cheaper work force, sidestepping Detroit's unemployed and the higher pay and benefits packages that Detroit workers were getting. While foreign automakers have hired some former Detroit workers, most of their workers have no automotive experience and were chosen through rigorous screen processes that stress physical endurance and a bent for working in teams.

The United Automobile Workers union, which represents workers in the United States, said the announcement by Ford was "deeply disappointing and devastating" for its members. The cutbacks signal a new reality for auto workers -- one in which $30-an-hour wages and generous benefits are no longer a guarantee.

Foreign manufacturers, who now sell more than 4 of every 10 cars and trucks in the United States, have created tens of thousands of jobs at new factories from Ontario to Ohio, across the South and in Mexico. Because of their growth, there has been no net loss in American automotive jobs over the last 10 years, according to James P. Womack, an author and specialist in manufacturing efficiency. Auto industry employment has held steady at about 1.1 million workers, including those at parts companies, he said.

3.3 Where have all the manufacturing jobs gone?

In Figure 8.1 we saw that manufacturing generally increased, as a share of GDP, from the late 1800s until peaking at around one-third of the economy in the 1960s. Since then the share of GDP from manufacturing has declined to around 20%. However we would be wrong to conclude that the manufacturing sector has shrunk in absolute economic terms. In fact, the value added from manufacturing, when adjusted for inflation, is about the same magnitude now as it was in the 1960s. While the size of the manufacturing sector has not decreased, its share of GDP has declined because the size of the service sector has grown so much.

However, employment in manufacturing has declined, even while the value of manufacturing output has held fairly constant. As seen in Figure 8.6, while there were some ups and downs, total employment in manufacturing generally increased from 1950 until 1979. Since then there have been two periods of decline in manufacturing employment, first in the early 1980s, and more recently since the late 1990s. From a peak of over 20 million workers in 1979, the number of manufacturing jobs has declined by 30%.


Figure 8.6 Total United States Manufacturing Employment and Manufacturing Employment as a Percentage of Total Employment, 1950-2004

The number of manufacturing jobs in the United States has declined since 1979 while the number of manufacturing jobs as a percentage of all jobs has generally declined since the mid-1950s.
Figure 8.6 shows that about 25% of all workers were employed in manufacturing during the 1950s and 1960s. By 2004, only 11% of all workers were employed in manufacturing. Between 2000 and 2004, nearly three million manufacturing jobs were lost in the United States.

Where have these jobs gone? Could it be that Americans are simply demanding fewer manufactured goods? Such an interpretation could emerge from Figure 8.1, which includes data only on domestic production; however American consumers can, of course, also purchase goods manufactured abroad. Up until the 1970s the United States ran a net trade surplus in manufactured goods, exporting more goods than it imported. Since then, however, the country has been running a trade deficit in manufactured goods which has grown substantially in recent years, reaching a level equivalent to 6% of GDP in 2004. When we combine the demand for both domestic and foreign goods, we find that the demand for goods as a percentage of total demand has remained remarkably constant over the past 20 years – even while services have increased both as a percentage of value added and in the percentage of employment generated by that sector.

This leads us to a second possible explanation for the loss of American manufacturing jobs – that they have essentially shifted overseas. As recently as 1990 American manufacturers met 90% of the domestic demand for goods. In 2004, this percentage had fallen to around 67%. Thus, more of American’s demand for goods is being met with imports rather than domestic production. The major sources of imports in goods are (in order of the value of imports): Canada, China, Mexico, Japan, and Germany. The U.S. trade deficit with all these countries has grown, especially with China – the value of imports from China (including both goods and services) increased 50% between just 2001 and 2003. In the last half of 2004 the U.S. economy recovered over 100,000 service jobs per month, but manufacturing employment stagnated, primarily because of continuing employment declines in manufacturing of nondurable goods – those that, like textiles, are most easily produced with less-trained workers, and are most readily transported.

However, even in 1991, when 90% of the goods purchased in this country were manufactured here, the decline in absolute numbers of manufacturing jobs was already well underway. In fact, this decline is not unique to the United States, but is a world-wide phenomenon. The absolute number of manufacturing jobs peaked years ago in virtually all industrial countries. The same is true, or is rapidly becoming true, in emerging markets, where rapid productivity growth allows real wages and output to rise while manufacturing jobs decline and the service sector expands relative to manufacturing. It is hard to find any country in the world where the number of manufacturing jobs has increased since 2000. China, the trading partner that has been perceived as the greatest threat to United States jobs, has been undergoing similar pain; between 1995 and 2002

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11 A search in the World Development Indicators database yielded only two such countries, neither of which had updated industrial employment data past 2001. In Mexico, employment in industry increased from 22.5% of all employment in 1997 to 26% of employment in 2001. In Azerbaijan, the increase over these years was from 7.4% to 10.8%. Unfortunately, there are many countries with missing data on industrial employment in this database.
China lost 14.9 million manufacturing jobs, more than the entire United States manufacturing workforce of 14.3 million. This is in spite of the fact that, during the period 1997-2003, China was enjoying an average annual growth in manufacturing value-added of 10%.  

What is the cause of this global phenomenon? It appears that recent decades have seen a speed-up in the process that began with the Industrial Revolution in the mid- to late eighteenth century, in which technological change makes it possible for industries to substitute manufactured capital (i.e., machinery and automation) for human labor. Manufacturing productivity is commonly measured as an index of the value of the goods produced per hour of labor. Manufacturing productivity in the U.S. over the past few decades has been growing faster than overall business productivity and has particularly accelerated since 1990. During the 1980s manufacturing productivity increased by an average of 2.6% per year, but stepped up to over 3% per year in the early 1990s, and over 4% per year in the late 1990s.

This increase in productivity means that more goods can be produced with less human inputs. While global demand for manufactured goods continues to grow, it does not grow as fast as productivity: more things are produced and sold, but fewer people are required to produce them. Hence the world-wide availability of manufacturing jobs has been a “shrinking pie.” Low wages or good education can make one or another country’s workforce better able to compete for their share of the pie; but in this particular contest there are no long-range winners, only differences in how rapidly the loss occurs.

What does this mean for human well-being? An economist looking forward to this situation one or two hundred years ago might have said that this is exactly what progress is supposed to be about: people can get more of what they want with less work. However people can only purchase the output of a market economy if they have income; and for most people income comes primarily through wages, attached to jobs.

As we have seen, the number of jobs in the tertiary sector has been growing steadily, taking up most or all of the slack left by the shrinking secondary sector. However, such transitions are always painful: people who had developed valuable skills in one job may find that their labor commands a lower price in other types of work. Moreover, many manufacturing jobs have traditionally enjoyed institutional arrangements – including unionization and job characteristics negotiated with the help of unions – that increased the compensation and the quality of those jobs. Thus the distress and anxiety produced by the erosion of manufacturing jobs in the United States may be greater than that experienced in some other countries where such jobs never did include the extra institutional benefits some jobs in the sector enjoyed here.

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12 This was exceeded by just four countries: Mozambique (18% average annual growth in manufacturing value-added), Cambodia (17%), Myanmar (12%) and Vietnam (11%). Unfortunately none of these provide data on manufacturing jobs, so we cannot know whether they escaped the jobless growth phenomenon common to so many other countries, including China and the United States. It is interesting to note that these dramatic spurts of growth in manufacturing were achieved in countries moving from communist (or at least anti-capitalist) regimes toward market economies. Coming from very low manufacturing bases, they were all engaged in a late Industrial Revolution catch-up.
Does all of this mean that we should be complacent about the large shifts going on in the economy? Should we shrug off individual complaints about job loss and downshifting as merely temporary phenomena? To the individuals who have lost jobs, pensions, or homes it is no comfort that their losses are or will be made up for by someone else’s gains. Beyond this, modern societies can be criticized for failing to turn dramatic economic success into equal increases in human well-being. As is shown in Figure 8.7, average worker salaries in the United States have not kept pace with increases in worker productivity. As we will see in Chapter 14, the achievement of greater openness in global markets has brought downward pressure on the prices of many goods, but at the same time global cost-cutting competition also pressures companies to cut back on worker benefits and working conditions, as well as on the cost of labor.


**Figure 8.7: Manufacturing productivity compared to average manufacturing wages in the U.S. from 1977 to 2004**

*Up to the early 1990s wages generally rose faster than productivity. Since then large productivity gains have not led to similar increases in manufacturing wages.*

The secondary sector is probably not the arena in which these tensions will, or will not, be worked out. The arena where we can look for the next wave of attempts to turn economic progress into human progress is likely to be the growing tertiary sector. To that we now turn.
Discussion Questions

1. Section 3.1 seems to present a paradox. While house prices have been rising much faster than inflation (and wages) for many decades, the percentage of Americans that own their own homes has also been increasing. This seems to contradict the basic rules of supply and demand – how can this be? What other factors besides price and income might be relevant in explaining the rising rates of home ownership?

2. You’ve probably heard politicians in the United States talking about the need to prevent American jobs from being moved overseas. But the previous section suggests that manufacturing jobs are declining virtually all over the world. In light of this global reality, what policies make the most sense for the United States? Would the same policies be advisable for other countries? If all countries adopted the same policies, would they become less effective?

4. Production of Services: The Tertiary Sector

Even more than the other sectors, the tertiary sector can’t be defined as a homogenous economic category. As we saw in Table 8.1, the service sector includes a wide array of industries including education, retail trade, waste management, and entertainment. Data on employment trends, wages, and other measures vary considerably across different service industries. For example, a common perception is that jobs in the service sector pay poorly. While this is true for such jobs as cashiers and child care workers, it clearly isn’t applicable to such service jobs as doctors and lawyers. With this caveat in mind, service jobs do pay less on average than manufacturing jobs. In 2004 the average hourly wage in goods-producing industries was $18.96 while the average pay in the service industries was $16.63 per hour.

While most international trade has traditionally involved the exchange of physical goods, trade in services is now expanding at a faster rate. While it is easy to picture a physical good moving between countries, it might be harder to imagine how services could be internationally traded. A service is “exported” if agents in the U.S. provide a service used by an individual or organization based abroad. For example, if someone from Argentina stays in a U.S. hotel, this is considered an “export” of U.S.-produced accommodation services. A service is “imported” if agents in the foreign sector provide a service used by individuals or organizations based in the U.S. For example, if a U.S. manufacturer ships its goods using freighters registered in Liberia, it is said to “import” transportation services from Liberia. Between 1980 and 2004, global trade in services increased by a factor of 5.6 while trade in goods increased by a factor of 4.4. By 2004 about 20% of all international trade was in services. Improvements in information technology have made services such as customer call centers, software development, and data processing more transferable across national boundaries in recent years. The United Nations notes that cost savings of 20-40% are commonly reported by companies that offshore their service needs to low-wage nations. It is estimated that by 2015 3.4 million service jobs may shift from the United States to low-income countries.
In 2004 the United States exported more in services than it imported, but this trade surplus has been decreasing since 1997. The primary services exported by the United States are travel, financial, and educational services while the main service imports are travel, telecommunications, and freight services.

As the tertiary sector includes so many industries, we don’t have the space in this chapter to discuss them all. Instead, we’ll look at just a few of the major service industries, considering some especially significant trends and issues.

4.1 Human Services

Human services include education, health care, social assistance, and child care. These services can be provided by private businesses, non-profit organizations, or governments. A major difference between the United States and other developed economies is that human services in the U.S. are less likely to be provided by the public sphere. Perhaps the most vivid example of this difference is with respect to health care.

Health care  Health care is one of the fastest growing industries in the United States. As shown in Figure 8.8, national health care expenditures have grown from about 5% of GDP in 1960 to nearly 15% of GDP in 2004\(^\text{13}\). Out-of-pocket costs have remained relatively constant over the years, but both private insurance and public costs have risen considerably. In 2004 annual per capita spending on health services and supplies in the United States was $5,900. The main categories of health care expenditures include hospital care (32% of total health care costs in 2004), physician and clinical services (23%), prescription drugs (12%), and nursing home care (7%). Health care costs are expected to increase further, and become an even greater share of GDP, as the population ages and medical technology continues to become more sophisticated.

While the share of health expenditures made by the public sphere has increased in recent decades, public funding of health care in the United States is much smaller as a share of total health care costs than in any other developed nation. In 2004 public funding paid for 45% of health care costs in the United States, while the average among 29 industrialized nations (including the United States) was 73%.

The dominance of private markets for health care in the United States has not kept health care spending or costs low. In fact, the United States spends a greater share of its GDP for health care than any other developed nation. While the United States spends about 15% of GDP for health care, Canada spends 10%, Sweden spends 9%, and the United Kingdom spends 8%. Also, health care prices in the United States are rising much faster than prices in general. Between 2000 and 2004 the consumer price index for

\(^{13}\) If you picked up the discrepancy between this figure and the 6.8% attributed in table 8.1 to health care and social services, the explanation is to be found by reference to the difference between an expenditure analysis of GDP (which yields the higher health care figure of 14%) and a production approach to national accounting, which was used in table 8.1. These differences have been explained in chapter 5.
medical care rose 19% while the overall price index only rose 10%. Health insurance premiums are rising at an even faster rate.

Given that these expenditures are so high in the United States, is the quality of health care better than in other developed nations? Using several common measures of national health, the United States actually ranks lower than most other developed nations; this country has a relatively low number of physicians per capita and a lower-than-average rate of childhood immunization. Average life spans are less than in most other developed nations, and infant mortality rates are slightly above the norm.

These averages, however, fail to demonstrate the disparities in the American health care system. The United States offers some of the highest-quality medical care in the world; wealthy individuals from other nations often come to the U.S. to receive the best care possible. However, unlike all other developed nations, the United States does not have publicly-funded universal health care coverage. About 16% of Americans were without any health insurance in 2004, and this percentage increased in recent years.

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**Figure 8.8 Health Care Expenditures in the United States as a Percentage of GDP, 1960-2004**

*Health care expenditures in the United States have risen from about 5% of GDP in 1960 to nearly 15% of GDP in 2004.*

Thus the United States provides excellent health care for those who can afford it or have sufficient insurance, while those without insurance often go without cost-effective routine and preventative care. Many uninsured people resort to using emergency
rooms as a source of primary care, which is partially responsible for the high health care costs in the country. Comparisons between the United States health care system and systems in other parts of the world raise the question of whether our costs would be lower, and health outcomes improved, under a system of universal coverage. In the past, medical and insurance industry lobbies have defeated efforts to shift responsibility for health insurance from employers to the government. Other industries are now beginning to argue the other side, pointing out that employer-based health insurance hurts the ability of American companies to compete with corporations in other countries who do not have this responsibility, and that this system will always leave too many people uncovered.

**News in Context: Declare War on Diabetes**

The neighborhoods where diabetes runs rampant are almost always short on parks for exercise and have schools that rarely conduct gym classes. Fast food restaurants abound; healthy food is often expensive or unavailable and bad diet choices – laden with sugar, fat and calories – are readily at hand. Diabetes is a disease defined by economic disparity. In heavily Hispanic East Harlem in Manhattan, the illness plagues 14 percent of the population; just to the south, across 96th Street on the more affluent Upper East Side, the rate is under 2 percent.

The sheer cost of caring for diabetics, who often do not get help until they are in catastrophic need, will keep going up. The financial burden of attending to diabetes’ many uninsured victims eventually lands on state and local governments. In New York City – where one in eight adults has diabetes, almost 150 percent more than just 10 years ago – that cost is about $200 million annually and growing.

… It should be no mystery that the United States, the only leading economic power without national health care, also leads the world in the per capita rate of diabetes. Care as basic as regular visits to a nutritionist are not typically covered by insurance. Reimbursement is easier when the disease is far along, and the patient needs dialysis or amputation of toes or limbs.  


Health care provides an excellent example of the significance of all four of the basic economic activities. In this country a huge, and hugely important, industry trains medical personnel, supports research, and produces the other goods and services that are required in the production of health care. The distribution of health care differs widely between countries that leave it entirely to the market, those that make it available through national health plans, and those (of which the United States is the major example) that fall halfway in between, with a quasi-market based system for employees of large firms, and government-paid emergency care for the rest. The consumption of health care is tied closely to the distribution system. As the foregoing editorial indicates, the maintenance of health is strongly affected by the incentives built into the systems of consumption and distribution. As with many other major resources, maintenance is far less expensive than remediation – but will not receive adequate attention unless producers, distributors and consumers receive appropriate incentives.
Education The situation with education in the United States in many ways mirrors that of health care. The quality of education in American can be excellent, and many foreigners come to the U.S. for their higher education; about 20% of graduate students in the U.S. are foreign-born. Spending per student in the United States on elementary and secondary education is significantly higher than the OECD average (only Switzerland and Luxembourg spend more), and the U.S. spends more per student than any other nation on postsecondary education. However, the performance of American students is only mediocre. In the results of a standardized test given in 2003 to 15-year old students in 40 nations with varying levels of economic development, U.S. students ranked 28th in math, 18th in reading, and 22nd in science.

Education in the United States is provided by both public and private institutions. There are about 73 million students enrolled in American schools; about 85% of these are in public schools. Among people age 25 and older in the United States in 2004, 85% had graduated from high school and 28% had college degrees. Educational attainment differs by race and gender. For example, while 28% of whites had a college degree in 2004, only 18% of blacks and 12% of those of Hispanic origin had completed college. While males are more likely than females to have a college degree (30% vs. 26%), more females are enrolled in college than males.

4.2 Financial and Insurance Services

Financial services include the management of stocks, mutual funds, money market accounts, and other investments, all of which are referred to as financial assets. About half of the nation’s financial assets are held by households, non-financial businesses, and governments. The rest are held by financial institutions (including banks, credit unions, pension funds, retirement funds, mutual funds, and security brokers) and insurance companies.

Financial assets: stocks (or shares in ownership of companies); bonds (or certificates indicating that the holder has loaned money to a government entity, which will repay the loan, with interest, over time); money market accounts; and other holdings in which wealth can be invested with an expectation of future return.

The financial and insurance sectors contributed about 8% of the value-added in the United States in 2004 and collectively employed about six million people. The most common jobs in these industries are bank tellers, loan officers, and insurance agents.

Banks and credit unions, along with other institutions such as retail stores, phone companies, and oil companies, can issue credit cards to individuals and businesses. While using a debit card directly withdraws money from a checking or savings account, use of a credit card essentially amounts to a loan by the issuer. Generally, if the entire balance is paid off in a timely manner, no interest is charged to the credit card holder. If the entire balance is not paid, the issuer charges interest on the remaining balance. In general, credit card issuers charge higher rates of interest than are charged for other types of loans. For example, in 2004 the average interest rate charged for credit cards was 13%
while the average rate on for home mortgages and new car purchases was about 6%. With the deregulation of the credit card industry in the late 1970s, the maximum interest rate a credit card issuer can charge varies by state, and some states (such as South Dakota, Tennessee, and Delaware) have no legal limit on credit card interest rates.

There has been explosive growth in the use of credit cards in the United States. In 1980 credit card spending amounted to $205 billion and credit card debt stood at $81 billion. By 2003 credit card spending had increased to $1,735 billion with debt at $796 billion. The average American household carries a credit card debt of about $8,500 and pays $1,000 per year in credit card interest. A growing concern is the widespread use of credit cards by college students, with the average student carrying a credit card debt of over $2,000 in 2001. For more on the use, and abuse, of credit cards by college students, see the News in Context box below.

Insurances companies provide policies for various purposes, primarily life, automobile, and homeowners policies. In 2003 there were over 1,000 life insurance companies in the United States holding nearly $4 trillion in assets. Americans hold about 400 million life insurance policies – an average of more than one policy per individual. The premiums charged for automobile and homeowners insurance vary dramatically by state because of differences in state laws and regulations. For example, in 2003 the states with the highest automobile insurance premiums were New Jersey and New York at over $1,300 annually, while the lowest rates were in Iowa, North Dakota, and Wisconsin at less than $700 per year.

4.3 Retail Services

Few manufacturers sell their products directly to consumers. Instead, manufacturers typically sell their output to retailers, perhaps also using wholesalers as intermediaries. Retailers are categorized in the service sector because they normally do not manufacturer any of the goods they sell. Prominent retailers such as Wal-Mart, Home Depot, and Borders purchase virtually all their products from suppliers.

Retail services as a whole are not becoming a larger share of the national economy, but there is a clear trend towards the dominance of a small number of very large retailers. We can use data on concentration ratios to illustrate the ascendancy of these firms. Figure 8.9 shows the change in the four-firm concentration ratios$^{14}$ for several types of retailers between 1992 and 2002. In each case we can see the growing share of revenues captured by the largest four firms in the industry.

Large retailers have come to dominate their industries by offering consumers an array of choices and low prices. In the parlance of microeconomics, many of these retail industries are clearly oligopolistic. However, the economic scale of the largest retailers has become so large that the behavior of individual firms has implications at the macroeconomic level. In 2005 Wal-Mart was the world’s second-largest firm by

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$^{14}$ A four-firm concentration ratio is calculated by dividing the domestic revenues of the four largest firms in an industry by the total domestic revenues in the industry.
revenues, with sales of $316 billion, and the world’s largest employer with over 1.8 million employees.

**News in Context: Beyond their Means**


As college costs have increased, so has the cost of the college lifestyle, spurring millions of young adults ready to enter the professional world to take on an oppressive yoke of debt.

A 2000 survey by Nellie Mae, a leading provider of student loans, reports that 78 percent of undergraduate students [who apply for student loans] have credit cards, up from 67 percent in 1998. Of that 78 percent, nearly a third have four or more cards. For that same 78 percent, average credit card debt is $2,748. About 13 percent are $3,000-$7,000 in debt and about 9 percent have more than $7,000 in credit card debt.

"That sucks," says Danette Tidwell of the Texas branch of the Jump$tart Coalition for Personal Financial Literacy, which pushes for financial literacy training in public school grades K-12. "It's deadly. It's one of the leading reasons second-year students drop out of college. They needed a second job to pay their bills."

Sometimes, it has tragic results: Sean Moyer, 22, who had been a National Merit Scholar in high school, had 12 credit cards and was $14,000 in debt at the University of Oklahoma. He hanged himself in a closet of his parent's home in 1998. His mother found his body. Another OU student, Mitzi Pool, 19, also panicked over $3,000 in credit card debt. She hanged herself in her dorm room with a rope made from a bedsheets.

"It's a huge problem nationwide," said Dottie Bagwell, assistant professor of financial planning at Texas Tech University. "There are students living someone else's life, with somebody else's spending plan."

Students, who haven't been exposed to revolving charge accounts before, don't realize that the minimum payment on a credit bill is just that - a minimal payment. Soon, after several months of spending with minimal paybacks, the students are under an enormous amount of debt. "They don't realize they can't afford everything their parents can afford," said Dara Duguay, national director of Jump$tar. "They don't draw the connection that they can't afford it if they don't have the income for it."

Some researchers conclude that a major reason productivity increased so much in the United States in the late 1990s is a result of Wal-Mart’s pressure on suppliers to increase their efficiency. As another example of Wal-Mart’s pervasive reach, the decline of the American textiles industry, described earlier in this chapter, can be partly attributed
to Wal-Mart’s search abroad for low-priced apparel. Consider that an estimated 10% of Chinese imports to the United States are for Wal-Mart. Economy-wide impacts such as these blur traditional distinctions between microeconomics and macroeconomics and call for new lines of research and analysis.

![Figure 8.9 Four-firm Concentration Ratios in Retail Industries, 1992-2002](image)

*The four-firm concentration ratios in these retail industries have all increased since 1992.*

4.4 The tertiary sector in the overall macro context

Early in this chapter we gave an intuitive explanation for why, even though people are just as dependent as they have always been on the materials extracted from nature, the primary sector has nevertheless shrunk in economic importance as societies have industrialized. It was not hard to explain how for a while manufacturing came to claim a larger part of every household budget, and therefore of the total economy, but we left till now the less obvious explanations for how “services” (a broad term that covers much) have come to be so significant.

Figure 8.10 is a depiction of the United States economy which we have assembled to take a closer look at the tertiary sector. It starts from the value-added approach to national accounting that was used for Table 8.1, earlier in this chapter. This approach, as you may remember from Chapter 5, includes intermediate inputs such as wholesale and retail trade, as well as management of companies and enterprises. The primary and secondary sectors of the economy are shown in figure 8.10 in the same proportions as
those given in Table 8.1. Government, shown as 12.4% of GDP in Table 8.1, is now divided into three portions. The two largest areas of government production are security (including national defense and public order and safety) and education. “Government-other” is compiled by adding up such categories as the salaries of elected officials, tax collection and financial management, transportation, natural resources, housing, and health. It does not, however, include transfer payments such as welfare and disability.15

Figure 8.10 Classification of GDP in the United States, 2004

The production of services, accounting for nearly two-thirds of GDP in the United States, can be best understood if broken down into several additional categories.

Figure 8.10 then illustrates one potential way to further categorize the tertiary sector.16 The four divisions presented in the figure are explained below.

- The largest category of activities that are reflected in GDP has been named, here, “OWNERSHIP TRANSACTIONS.” Nearly 8 percentage points of this category represents the imputed value, to each home-owner, of the ongoing value of being able to live in that house. The remainder – a little over 20% of GDP – is essentially about buying

15 Total government spending is about 20% of GDP, but transfer payments do not represent an increase in output and are therefore not included in the government's contribution to GDP. Remember from chapter 5 that, in the cases where “government production” cannot be evaluated by sale prices set in markets, its value is sometimes imputed as the cost of inputs, such as salaries paid to government employees. Note that some government salaries, housing costs, etc. could be allocated to government’s production in the areas of defense and education; a more precise breakdown than that which can readily be extracted from BEA statistics would increase the amounts under these headings, while decreasing “government – other.”

16 The tertiary sector divisions presented in Figure 8.10 are the authors’ classification and do not represent any official government classification scheme.
and selling, covering activities that transfer ownership of goods and services from producers to buyers, or from previous owners to new owners. This includes transportation and warehousing, wholesale and retail trade, and real estate rental and leasing (aside from the already mentioned imputed value of home ownership).

Transportation and transportation-related activities that allow people in a modern society to acquire items that were not produced locally are an important part of “ownership transactions.” They make it possible for you to enjoy fruits and vegetables when they are out of season for where you live, goods that are not produced in your area, and goods that you can purchase more cheaply because they were produced in other parts of the country – or, more often, of the world – where the cost is lower (leaving aside, for the moment, feelings you may have about the variety of reasons why production costs for certain goods are lower in some places than in others).

Another significant portion of the value-added in this category may be traced to “the middle man” – the person or organization that smooths the transaction between the final buyer and the original producer, or between the previous owner and the next one (as is often the case with stocks and bonds, real estate, fine arts, and other things that tend to have a sequence of owners). It is sometimes said that a way to lower prices without hurting producers is to “get rid of the middle man,” meaning: Find a way to put the end user directly in contact with the producer. Perhaps more of this will happen over time, via the World Wide Web. In the meantime, in an advanced economy in which there is a huge amount of choice, for buyers, among objects that can come from anywhere in the world, it is not surprising that a significant portion of GDP should be devoted to making these connections.

- The next largest category, “MANAGING THE SYSTEM,” covers the marketed services that keep the economic system going. These include information, finance and insurance, and professional, scientific, and technical services.17 The category also includes the activities that the Bureau of the Census calls administrative and waste management, and management of companies and enterprises.

This category is about the organization and management of a hugely complex system – or, more accurately, a set of systems. Our society has come a long way from the relatively simple economies we described early in this chapter, when discussing how the secondary sector grew relative to the primary sector. Firms are more numerous; large (and enormous) firms are more numerous; and there is much organization and management to be done in negotiating the networks of relations inside these firms, and among them. Governments do some of this organization and management, and they in turn, along with the firms, need many kinds of support. Many individuals and families,

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17 A major part of the finance industry is the buying and selling of paper or electronic claims to ownership of productive resources, such as stocks. The financial advisors, investment companies, and other money managers whose salaries, bonuses, etc., are represented as “finance” in “managing the system” are sometimes selling the right to own a piece of a new company; more often they are reselling previously owned stocks and bonds. If we could readily sort out these activities, it would perhaps be appropriate to move them to the category, “ownership transactions.”
too, have resources that they can use to purchase support for the complexities of operating in an industrialized world. The kinds of support that individuals and organizations want and can pay for include insurance and advice about insurance, as well as advice and assistance with the management and operation of hard-to-understand technologies, from automobile repair to cable company services.

- “SOCIAL SERVICES” (within the tertiary sector) covers only those portions of education, health care and social assistance that are not covered by government; they do not cover the cost of materials (such as medical supplies) that would show up as products of the secondary sector.

- The category “ENTERTAINMENT” is partially about “what we do for fun;” it covers services sold in relation to arts, entertainment and recreation, and accommodation and food services. Thus, for example, it comprises wages for musicians, but not the sale price of a new painting (accounted as a secondary sector product); it covers payments for movie tickets and wages for hotel and restaurant personnel as well as the people working in retail and wholesale who sell DVDs or food, but not the materials or manufacturing cost of DVDs or of food (whose value is divided between the primary and secondary sectors). A significant portion of this category is also work-related, including business lunches, accommodations for business trips, etc.

You may, after reading all of this, still have some questions about the relative emphasis given in our economy to different things. Yes, you may say, this is a complicated world, in which much effort is required just to make it all work – hence the large size of the tertiary sector: but surely education, social services, and entertainment are areas that are especially important for the quality of our lives; why are these so relatively small? One answer may be found in the accounting approaches that were described in Chapter 5; for example, as noted in footnote 15, above, health care is easier to identify, and therefore looms much larger in the “spending approach” to national accounting than in the “product approach” we have used in this chapter. However, regardless of which type of National Income and Products Accounts we use, something very important is still missing from the picture we have been assembling. Chapter 6 provides the necessary hint as to what it is.

The statistics cited throughout this chapter have only covered the activities that go through the market. Goods, and especially services, that are not bought or sold do not show up in the national accounts. For example, the range of leisure activities includes things for which we pay, like going to concerts, and being able to stay in hotels and motels when we travel. Other leisure activities enter the market through sales of music CDs, sports equipment, toys, materials for crafts and hobbies, etc. But our entertainments and relaxations also include many things for which we pay little or nothing; getting together with friends, walking or biking, reading, and so on. A sales-hungry economy finds ever more ways to sell equipment or fashionable gear that we can use in our leisure time; but still, much of what we do for fun is missed in the national accounts.
Also missing are the unpaid activities which may or may not be thought of as work but which are essential for maintaining the physical and social infrastructure of our lives – including preparing the food that is required for life itself. Again, seemingly inherent in our system is a drive to find ever more ways to replace what we do for ourselves with marketed services or products; the replacement of much home cooking with fast food, take-outs and rapid meal delivery is a prime example. Still, the services that people provide as friends, neighbors, family members, and citizens continue to be a large part of the economy, though unmeasured by flows of money, and therefore missing from GDP. Recall from Chapter 6 that even the most conservative estimates of the total value of household production come up with numbers equal to 25-35% of standard GDP in the U.S.

In other words, the economy is bigger than it looks if we count only the economic activities that go through markets. In the larger, real economy, covering the core as well as the business and public purpose spheres, the tertiary sector would still loom very large – much of the (non-monetized) economic activity in the core sphere is services – but its expansion would be largely in the areas of “private social services” and “entertainment.”

4.5 Conclusion

The purpose of this chapter has been to provide a bird’s-eye view of what our economy consists of. We have looked at primary sector activities that provide the raw materials on which everything else depends, noting that the importance of these activities is belied by the small percentage of GDP devoted to them. We have looked at secondary sector activities that process physical materials, turning them into goods for sale. And we have looked at the tertiary sector in which two-fifths of the measured economy is devoted to helping goods and services to change hands in exchange for money, and another quarter or so of GDP is devoted to providing management and information to make the system work. The message is not that these transactional and management activities are unimportant, but that their size in the measured economy is not the best reflection of their importance to the quality of our lives.

It makes sense to work with the most readily available and consistent data, organized in categories supplied by the various government statistical offices; this makes our results easy for others to understand and compare. However, the results we have just seen provide an important lesson about how our understanding of the world is affected by which data we look at, and how we organize them.

Individual and societal well-being depend far more heavily on natural resources than is indicated in the primary sector portion of GDP. In part this discrepancy results from the fact that nature itself gets no fees or wages; human societies only pay the labor and machinery costs of extracting what we want from nature, and we have become astonishingly efficient at doing that with ever smaller labor inputs. It is also because our society has not until recently possessed adequate knowledge about the full cost of maintaining natural resources; there is much deferred maintenance that will increase future costs, both because of reductions in the quantity and quality of essential resources
(such as fresh water), and by requiring investments to reduce the pollution generated by our economic system and to restore natural systems that have been degraded.

Finally, measures of economic flows are poor indicators of what matters most to people, or of how we spend most of our time. This chapter has, we hope, given you a grasp of what goes on in the business sphere of the contemporary United States economy, as well as a little insight into the government part of the public purpose sphere. It should be evident that the relation between business sphere activity and well-being is by no means one-to-one. That is an observation that cannot be pursued much farther in an economics textbook, but it is important for you to keep it in mind as you study this subject.

Discussion Questions

1. Section 4.1 seems to present another surprising contradiction. Economic theory suggests that goods and services provided in competitive markets by private enterprises will result in lower prices compared to providing similar products through the public sector. But we’ve learned that the United States actually has the highest health care costs in the world, although not better health outcomes than countries that provide public health care. Do you think the United States should provide health coverage to everyone through a public system? If so, do you think such a proposal could be politically feasible in the near future?

2. Try to estimate what share of your total expenditures is spent on products from the primary, secondary, and tertiary sectors. How do you think your expenditure patterns will change in the future? For example, assuming your income will rise when you graduate, do you see your share of expenditures on services increasing or decreasing?

Review Questions

1. List and define the three major sectors of the United States economy, as discussed in this chapter.
2. Approximately what percentage of the United States GDP is produced in each of the three sectors? How has this allocation changed over time?
3. Summarize how agriculture in the United States has changed over the last century. About how much of each dollar spent on food currently goes to farmers?
4. Does the declining share of the primary sector imply that it is becoming less important?
5. What is the greatest source of energy in the United States? What is the greatest use of energy?
6. Why does the number of new housing starts in the United States show a cyclical pattern?
7. Contrast the recent history of the American textile and automobile industries.
8. Are some politicians correct when they say that American manufacturing jobs have been shifted overseas?
9. Is the service sector synonymous with low-paying jobs?
10. Summarize the state of health care in the United States.
11. What trend was emphasized in the chapter concerning retail services?
12. How can the tertiary sector be further divided based on the type of service provided? What is the approximate magnitude of each of these divisions?

**Exercises**

1. Match each statement in Column A with a percentage in Column B.

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. The government share of U.S. GDP</td>
<td>i. 22%</td>
</tr>
<tr>
<td>b. The percent of U.S. workers working in the tertiary sector</td>
<td>iii. 13%</td>
</tr>
<tr>
<td>c. The share of U.S. energy from petroleum</td>
<td>v. 69%</td>
</tr>
<tr>
<td>d. The percentage of Americans that own their own home</td>
<td>vii. 82%</td>
</tr>
<tr>
<td>e. The percentage decline in U.S. manufacturing jobs since 1979</td>
<td>viii. 30%</td>
</tr>
<tr>
<td>f. The secondary sector’s share of the U.S. private economy</td>
<td></td>
</tr>
<tr>
<td>g. The percentage of U.S. GDP comprised of “ownership transactions”</td>
<td></td>
</tr>
<tr>
<td>h. The primary sector’s share of the U.S. private economy</td>
<td></td>
</tr>
</tbody>
</table>

2. Search the Internet or other news sources for a recent article discussing the loss of U.S. jobs to other countries. Based on what you’ve learned in this chapter, present a critique of the article. Can you find any statements in the article that you think may be inaccurate?

3. The Statistical Abstract of the United States, published annually, is the source of much of the data presented in this chapter. The Statistical Abstract is available online from the U.S. Census Bureau. Most likely a more recent edition of the Statistical Abstract is now available. Go online and locate it. Then determine whether the percentage of U.S. GDP attributed to the primary, secondary, tertiary, and government sectors has increased or decreased compared to the data presented in this chapter. Do these newer data continue the trends presented in Figure 8.1?
4. Match each statement in Column A with an answer in Column B.

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. The largest of the three economic sectors</td>
<td>i. Cyclical</td>
</tr>
<tr>
<td>b. The smallest of the three economic sectors</td>
<td>ii. Ford Motor Company</td>
</tr>
<tr>
<td>c. An example of a business in the primary sector</td>
<td>iii. Primary</td>
</tr>
<tr>
<td>d. An example of a business in the secondary sector</td>
<td>iv. Wal-Mart</td>
</tr>
<tr>
<td>e. An example of a business in the tertiary sector</td>
<td>v. Declining</td>
</tr>
<tr>
<td>f. The current trend of the size of the secondary sector</td>
<td>vi. Tertiary</td>
</tr>
<tr>
<td>g. The current trend of the size of the tertiary sector</td>
<td>vii. A local farmer’s market</td>
</tr>
<tr>
<td>h. The trend associated with the number of housing starts</td>
<td>viii. Increasing</td>
</tr>
</tbody>
</table>