Chapter 3
What Economies Do

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Chapter 3: What Economies Do

You cannot build a comfortable, secure house without a good understanding of bricks, pipes, and building techniques. Likewise, to understand how societies might be able to achieve the macroeconomic goals of good living standards, stability, and sustainability, we first need to understand some of the “building blocks” of any economy. While an in-depth analysis of specific parts of the economy is the subject of microeconomics, not macroeconomics, some familiarity with micro-level activities is a prerequisite for a macroeconomic understanding of how all these activities add up to make a national (and global) economy.

1. Introducing the Four Essential Economic Activities

In introducing the subject matter of economics in Chapter 1, we briefly mentioned that the four essential economic activities are resource maintenance, production, distribution, and consumption. Now it is time to look at these more directly.

1.1 Resource Maintenance

Resource maintenance means tending to, preserving, or improving the stocks of resources that form the basis for the preservation and quality of life. A capital stock is a quantity of any resource that is valued for its potential economic contributions. Capital stocks are also often referred to as “capital assets.”

| resource maintenance means managing capital stocks so that their productivity is sustained |
| capital stock: a quantity of any resource that is valued for its potential economic contributions |

We can identify four types of capital that contribute to an economy’s productivity. Natural capital refers to physical assets provided by nature, such as land that is suitable for agriculture or other human uses, fresh water sources, and stocks of minerals and crude oil that are still in the ground. Manufactured capital means physical assets that are generated by applying human productive activities to natural capital. These include such things as buildings, machinery, stocks of refined oil, transportation infrastructure, and inventories of produced goods that are waiting to be sold or to be used in further production. Human capital refers to individual people’s capacity for labor, particularly the knowledge and skills each can personally bring to his or her work. Social capital means the stock of trust, mutual understanding, shared values, and socially held knowledge that facilitates the social coordination of economic activity.

| natural capital: physical assets provided by nature |
**manufactured capital**: physical assets generated by applying human productive activities to natural capital

**human capital**: people’s capacity for labor and their individual knowledge and skills

**social capital**: the stock of trust, mutual understanding, shared values, and socially held knowledge that facilitates the social coordination of economic activity

Lastly, there is a fifth sort of resource, **financial capital**, which is a fund of purchasing power available to an economic actor. While financial capital doesn’t directly help to produce anything, it indirectly contributes to production by making it possible for people to produce goods and services in advance of getting paid for them. It also facilitates the activities of distribution and consumption. Key examples of financial capital would be a bank checking account, filled with funds that have been either saved up by the economic agent who owns it or loaned to the agent by a bank.

**financial capital**: funds of purchasing power available to facilitate economic activity

Notice that economists’ description of “capital” is different from what you might hear in everyday use. In common usage, sometimes people take “capital” to mean only financial capital. We hear this in everyday references to “capital markets,” “undercapitalized businesses,” “venture capital,” etc. Economists take a broader view.

Capital stocks may increase or decrease as a consequence of natural forces, as in the case of a natural forest; or they may be deliberately managed by humans, in order to provide needed inputs for the production of desired goods and services. When the quantity or quality of a non-financial resource is increased now in order to make benefits possible in the future, this is what economists mean by **investment**. The activity of “resource maintenance” is about making sure that investments are sufficient to provide an economy with good asset base for future years and future generations. You, right now, are investing in your “human capital” by studying economics.

**investment**: actions taken to increase the quantity or quality of a resource now, in order to make benefits possible in the future

1.2 Production

The second of the four basic economic activities is **production**. Production is the conversion of resources into usable products, which may be either goods or services. Goods are tangible objects, like bread or books, whereas services are intangibles, like TV broadcasting, teaching, or haircuts. Manufactured assets, such as machines and buildings, are also the result of human productive activity—that is, some items are produced for investment purposes. Popular bands producing music, recording companies producing CDs, local governments building roads, and individuals producing cooked meals are all engaged in the economic activity of production.
production: the conversion of resources to goods and services

The economic activity of production converts some resources, which we call inputs, into new goods and services, which we refer to as outputs, as a flow over some period of time. The way in which this production occurs depends on available technologies. Production processes can also lead to undesirable outputs, such as waste products. We consider only useful outputs to be economic goods and services.

inputs: resources that go into production

outputs: the results of production

waste products: outputs that are not used either for consumption or in a further production process

Inputs include materials that become part of the produced good, supplies that are used up in the production process, and labor time. For example, were we to ask a chef how to prepare one of his specialties, say ginger chicken, we would be given an answer in terms of ingredients (chicken, ginger, oil, etc.) and a method for combining them. The food ingredients become part of the produced good. Other inputs that will be used up in the process probably include the natural gas or electricity that provides heat and other supplies such as paper towels. The chef’s labor time is necessary for the dish to be prepared, and is used up by the process.

But the recipe, the chef’s skills, and the stove and cooking implements that will be used neither become part of the produced good nor are “used up,” although they are crucial for the production process. We can best think of these as flows of services arising out of capital stocks. The production process draws on services from social capital, in the form of the social knowledge embodied in a recipe; services of the chef’s human capital in the form of the chef’s acquired knowledge; and services of manufactured capital in the form of the stove and implements. But unlike materials and supplies, these capital stocks are not themselves transformed or used up in production.

In the case of commercial production, the services of another form of capital--financial capital--are also vitally important. This is because the production process takes time. Imagine that the chef and her husband, for example, are also entrepreneurs. They need to be able to buy the ingredients, buy or rent kitchen space, and get to work well before they can prepare the meal and sell it. They therefore need to have financial capital available at the start of the process—either financial assets of their own, or loans they can use to pay the bills until their revenues start coming in. If at the end of the process, they can sell the meal, cover all their expenses, and make a profit, they will end up with more financial capital than before.

This is illustrated in Figure 3.1. The reliance of commercial production on manufactured and financial capital is very important for macroeconomics, as we will see when we study issues of credit and investment. Production by noncommercial
organizations such as households, nonprofit organizations, and governments, also begins with resources—including financial resources, if any of the inputs are going to be bought on markets. Generally, however, such production is intended for purposes other than making a financial profit.

Figure 3.1 The Role of Financial Capital in Commercial Production

This diagram illustrates how a commercial production process must begin with a stock of financial capital. If profitable, the production and sale of goods yields results in a larger stock of financial capital.

1.3 Distribution

Distribution is the sharing of products and resources among people. In contemporary economies, distribution activities take two main forms: exchange and transfer.

| distribution: the allocation of products and resources among people |

When you hand over money in return for goods and services produced by other people, or when you receive a wage for the work you have provided to an employer, you are engaging in exchange. As we discussed in the previous chapter, markets are social institutions that facilitate exchange relations. People are generally much better off if they specialize in the production of some limited range of goods and services, and meet at least some of their other needs through exchange, than if they to produce everything they need themselves. (We will study this in more detail in Chapter 13 of this book.)

| exchange: trading one thing for another |

Distribution also takes place through transfer. Transfers are payments given with nothing specific expected in return. For example, wealth is transferred from one generation to the next by inheritance. Social Security payments from the federal government to the elderly, to give another example, are transfers.

| transfer: the giving of something with nothing specific expected in return |

Distribution also takes place through transfers of goods, services, or assets as well as transfers of money. Local public school boards, for example, distribute education services to child and teenage students in their districts, tuition-free. Parents in households transfer food and care to children. These sorts of nonmonetary transfers are called in-kind transfers.
1.4 Consumption

Consumption refers to the process by which goods and services are, at last, put to final use by people. In some cases, such as eating a meal or burning gasoline in a car, goods are literally “consumed” in the sense that they are used up and are no longer available for other uses. In other cases, such as enjoying art in a museum, the experience may be "consumed" without excluding others or using up material resources.

consumption: the final use of a good or service to satisfy current wants

The activity of consumption is frequently contrasted, in macroeconomics, to the resource maintenance activity of investment. The two activities are linked by the activity of saving, or refraining from consumption today in order to gain benefits in the future.

saving: refraining from consuming in the current period

For example, suppose a subsistence farmer grows a crop of corn. To the extent the farmer eats some of the corn, the farmer consumes—the corn is used up in the process of eating, and is not available for future use. To the extent that the farmer sets some of this year’s corn crop aside for planting next season, the farmer saves. The farmer also invests—that is, creates a resource that will aid production in the future. Having an inventory of seeds is what makes growing a crop in the next season possible.

In a modern, financially sophisticated economy, the situation is more complex, but the basic idea is the same. Modern households can save by spending less money on consumption than their income would allow. Governments can save by spending less on government consumption goods than their budgets would allow. Businesses save by retaining some of their earnings, instead of paying out to their shareholders (as dividends) all of what they make beyond their (non-investment) expenses. These flows of savings add to the stock of available financial assets. Financial intermediaries such as banks and bond markets allow savers to loan out the use of their financial capital to others who want to borrow. Some of the borrowers will use the funds to pay for the creation of new investment goods, such as buildings, factories, or a college education.

Discussion Questions

1. Think of some common activity you enjoy. For example, perhaps you like to get together with friends and listen to CDs while popping popcorn in the microwave. List the stocks of natural, manufactured, human, and social capital you draw on when engaging in this activity.

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1 When governments have a budget surplus, economists say they have net savings; more often, of course, governments have deficits which economists refer to as net dissaving (negative saving).
2. Classify each of the following according to which economic activity, or activities, it involves. If any seem like they include aspects of more than one activity, name the activities and explain your reasoning.

a. Planting a forest.
b. Sponsoring a scholarship for a college student.
c. Building an addition on a factory.
d. Buying a government savings bond
e. Giving someone a haircut.

2. Resource Maintenance: Attending to the Asset Base of the Macroeconomy

The activity of resource maintenance deserves more attention, because sustainability is an important macroeconomic goal, and is only achievable if care is taken to maintain the asset base of an economy. Several concepts are important in understanding the economics of resource maintenance.

2.1 Stocks versus Flows

When noneconomists use the term “stock,” they often mean ownership shares in enterprises that are traded on the “stock market.” To an economist, however, the concept of a stock refers to something as it is measured at a particular point in time. For example, the amount of water in a bathtub can be measured at one particular instant, and that quantity would be considered a stock. The number of computers in an office at 10 o’clock Tuesday morning is a stock, as is the number of trees in a forest at 2 o’clock Saturday afternoon.

On the other hand, flows are measured over a period of time. For example, the water that goes into a bathtub from a faucet is a flow; its quantity can be measured per minute or per hour. The number of computers purchased by an office over the course of this week or this month is a flow. So is the number of computers sold or junked over a period of time. As trees grow or are cut down or felled by lightening, these flows add to or subtract from forest resources.

| A stock is something whose quantity can be measured at a point in time |
| A flow is something whose quantity can be measured over a period of time |

Flows are like a movie; stocks are like a still photograph. Flows can either add to stocks or decrease them. Figure 3.2 is a generalized stock-flow diagram, which shows how flows change the level of a stock over time, by either adding to it or taking away from it. For example, the balance in your checking account on January 1 is a stock value. The deposits and withdrawals you make to your checking account are flows; your bank statement will tell you what the various flows were during a month.
Figure 3.2 The General Stock-Flow Diagram

Starting from an initial quantity of a stock, flows into and out of the stock determine how great the quantity is the next time the stock is measured.

A **stock-flow diagram** illustrates how stocks can be changed, over time, by flows.

Figure 3.3 gives an alternative representation of the relation of stocks and flows, this time showing a stock at only *one* point in time. Like water running through the tap (additions) and the drain (subtractions) of a bathtub, flows raise or lower the level of the water in the tub (stock).

Figure 3.3 A “Bathtub”-Style Diagram

*Like water flowing into a bathtub, flows that add to a stock will tend to raise its level over time. Like water flowing out of a bathtub, flows that subtract from a stock will tend to lower its level over time.*
2.2 Investment and Depreciation

Investment, as mentioned earlier, is a primary form of the activity of resource maintenance. When you read the word “investment” in this textbook, the image in your mind should be of someone buying new computers for an office or planting new trees in a forest—not of someone playing the stock market or “investing in” corporate bonds. Those sort of financial transactions usually merely shift the ownership of an existing financial asset from one economic actor to another; they don’t add to productivity-enhancing capital stocks for the economy at large.

“Disinvestment,” or the running down of capital stocks, can also occur, due to the forces of nature or human activities. When a capital stock is reduced, we say it has undergone depreciation. Natural capital depreciates when rivers become fouled by pollution or more trees are cut down than are naturally regenerated. Manufactured assets commonly lose their usefulness over time, as computers become obsolete, roads develop potholes, and equipment breaks. Human capital depreciates if skills are forgotten or age or illness renders a person less productive, and social capital can depreciate if norms of trust and peaceable interaction become less widely held.

| depreciation: decreases in the quantity or quality of a stock of capital |

If we measure gross investment, we include all flows into the capital stock over a period of time. Net investment, on the other hand, adjusts this measure for the fact that some portion of the capital stock also depreciates over the same period. The capital stock at the end of the period is equal to the capital stock at the beginning of the period plus only net investment. If depreciation is rapid, net investment can be negative—if the flow of replenishment is not sufficient to keep up with depreciation, the level of the stock will fall.

| gross investment: all flows into the capital stock over a period of time |

| net investment: gross investment minus an adjustment for depreciation of the capital stock |

Resource maintenance activities help to keep up the quantity and quality of important capital stocks. They include such activities as monitoring the water quality of a lake, repairing machinery, or encouraging people to refresh their knowledge. Sometimes resource maintenance “activity” means not engaging in activity. For example, people who make voluntary decisions to minimize their unnecessary gasoline consumption are helping to maintain petroleum resources. While this may look like inactivity, including resource maintenance as an economic activity implies that minimizing some kinds of consumption can contribute to well-being. Issues of resource maintenance will be further explored in Chapter 6.
2.3. Renewable Resources, Nonrenewable Resources, and Sustainability

In recent years, questions concerning the rate of depreciation of many forms of natural capital have come to the fore. Types of natural capital can be classified as either renewable or non renewable. A **renewable resource** regenerates itself through biological or other short-term processes, which may be helped out by human activity. The quantity and quality of its stock depend simultaneously on the rate at which the stock maintains its productivity and grows, and on the rate at which it is harvested or polluted. A healthy forest will go on indefinitely producing trees that may be harvested, yielding a flow of lumber that will be used up in production processes such as paper making.

**renewable resource**: a resource that regenerates itself through short-term processes

Other kinds of natural capital are **nonrenewable resources**. Their supply is fixed, although new discoveries can increase the stock that is known to be available. For example, there is a finite amount of fossil fuel reserves, and a finite amount of each kind of mineral, available on the earth. For nonrenewable resources, there are no self-regenerating flows, and the stock can only diminish over time as a result of human use and/or natural deterioration.

**nonrenewable resource**: a resource that cannot be reproduced on a human time-scale, so that its stock diminishes with use over time

How much of its stock of natural resources a society chooses to turn into inputs into current production processes, rather than to preserve for the future, is clearly a very important economic question. Even those natural inputs that are renewable—such as lumber from forests and fish from the seas—may be extinguished if so much of them is destroyed or extracted that they can no longer renew themselves. In addition, there are limits to the ability of nature to absorb polluting by-products of production processes. There are tipping points past which degraded natural capital may dramatically alter in some essential respect.

For example, in the case of climate change, rising global temperature due to human-made emissions from the burning of fossil fuels and the use of other chemicals may bring dramatic changes within this century. Ocean levels could rise by up to a meter, or even more because of melting of the Antarctic ice cap and other factors. This could cause the flooding of many low-lying areas, including New Orleans, south Florida, and Bangladesh. Some island nations are already losing significant land mass. Resource maintenance for natural capital means tracking the size, quality, and changes in natural resources and making wise decisions about their management.

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2 The length of the time period considered is important here. Oil reserves could be “renewed” from today’s organic matter—but over millions of years, far beyond the span of many human generations. If the species diversity that has been lost in the last century is ever replenished, this process will likely require thousands or even millions of years.
Sometimes, when it is pointed out that processes of production and consumption in the industrialized nations are currently depleting many important natural capital stocks much more rapidly than they can be replenished, the issue of **substitutability** is raised. That is, the depletion of any one resource (such as fossil fuels) is a less serious problem for future well-being, if other resources (such as nuclear or solar energy) can be cheaply and safely substituted for it in production and consumption. The extent of substitutability that can be achieved depends both on the characteristics of the resources and on the speed of technological advance.

**substitutability**: the possibility of using one resource instead of another

During the late 19th century and the first half of the 20th century, there was a widely felt confidence that human beings could not create any problems to which we could not find adequate and timely solutions. In the late 20th century, however, this faith began to fade in light of increasing ecological damage. Ecologists emphasize the complexity of natural systems and our relative ignorance about long-term, irreversible, or potentially catastrophic effects of economic behavior on the natural systems that support us. They suggest that, instead of placing blind faith in technological progress and economic substitutability, society should adopt a **precautionary principle**. This principle says that we should err on the cautious side, preferring to cooperate with natural systems rather than assuming we can safely replace them. Or, as stated by one group of experts, "When an activity raises threats of harm to the environment or human health, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically."^{3}

**precautionary principle**: the principle that we should err on the cautious side when dealing with natural systems, especially when major health or environmental damage could result

A **sustainable socioeconomic system** creates a flow of whatever is needed (in an economic system, this is goods and services) by using its renewable capital stocks without depleting them. Although some portion of some (especially nonrenewable) capital stocks may be used up in the process of production, the overall quality and quantity of the resource base for sustaining life and well-being are preserved.

**sustainable socioeconomic system**: a system in which the overall quality and quantity of the resource base required for sustaining life and well-being do not erode

^{3} This well-known formulation of the precautionary principle, sometimes called "the Wingspread statement," was spelled out in a January 1998 meeting of scientists, lawyers, policymakers, and environmentalists at Wingspread, the headquarters of the Johnson Foundation in Racine, Wisconsin.
Discussion Questions

1. Linda thinks a rich person is someone who earns a lot of money. Meng thinks a rich person is someone who has a big house and owns lots of corporate shares and bonds. How would the distinction between stocks and flows lend clarity to their discussion?

2. Do you think that a cheap and safe substitute for the use of fossil fuels in cars will ever be found? What about a substitute for the ozone layer, an atmospheric layer that protects the earth from damaging radiation from the sun? Discuss.


The topic of distribution also deserves further discussion, because it is important to distinguish between distribution in the form of exchange, and distribution in the form of transfer – and also to see the importance of each. In particular, macroeconomists are usually particularly interested in who receives the incomes generated by production, and the roles the government plays in economic distribution.

3.1 Labor and Capital Incomes

In exchange relations, as mentioned earlier, two actors come to an agreement to trade with each other on mutually agreed-upon terms. Something is delivered, and something is expected in return, in a quid pro quo (“something for something”) relation. In product and labor markets, exchanges typically involve a flow of goods or services from seller to buyer, in return for a monetary payment. The monetary payments in turn create flows of labor and capital income. For example, when customers buy shoes from a mall shoe store, the incomes created include the payment of a wage to the shoe salesperson, rent to the owners of the mall, and profits to the owners of the business. **Labor income** is compensation received by workers in the form of wages, salaries, and fringe benefits. **Capital income** includes rents, profits, and interest. (“Rent,” as economists use the term, refers not just to rent for housing, but to payments for the use of any asset).

| **labor income**: payments to workers, including wages, salaries, and fringe benefits |
| **capital income**: rents, profits, and interest |

Economists have, historically, engaged in vigorous debate about whether profits, rents, and interest income are compensation for productive activities. Some economists argue that such capital incomes are payments that are absolutely necessary and justified for the undertaking of production. Interest, they argue, is what gives people the incentive to save and invest, rather than spending all their income on immediate consumption. Rents encourage people to devote their assets to the most productive uses. Profits, these economists claim, represent a return to an entrepreneur’s contribution of creative talent and compensation to investors for their willingness to take risks. Such economists take a
classical view of markets, and believe that markets always generate the appropriate reward.

When profits, rents, and interest seem excessive, however, they have often become controversial. Most economists believe that there is a legitimate role for fair and reasonable profits and dividends, interest payments, and rents. But many economists also acknowledge that ill-gained or excessive capital incomes do not serve the social good. Persistently high profits may be a sign that a company has market power, indicating that a market is not competitive. Substantial profits might not be a sign of economic health, if the companies who earn them create significant negative social or environmental externalities in the process of getting them. Large capital incomes that arise from practices that violate the human dignity of workers are also socially harmful. When high capital incomes contribute to a concentration of wealth and power, political democracy itself may be threatened. Profits, interest and rents are legitimate compensation, in this view, only if they are earned and used in ways that serve the common good as well as the good of the individual owner of capital.

3.2 Transfers and Taxes

While incomes from production are vital to supporting economic life, distribution by means of one-way transfer also has a very significant role to play in explaining distribution in contemporary economies. Transfers are flows of money, goods, or services for which nothing specific is given in return—or at least nothing specific at the current time. Transfers can take place between individuals, or between the government and individuals; macroeconomists are particularly interested in transfers involving government.

Transfers from the government are often made in response to people’s dependency needs. Our individual basic needs during some portions of our lifetimes—as infants and children, or when incapacitated by age or illness—cannot be satisfied through exchange, because we have little or nothing to give at those times. During childhood we have no choice but to rely on others—in our families, communities, and nations—to transfer to us the care, shelter, food, etc. that we need to survive and flourish. We may need such transfers again later in life if we become unemployed or incapacitated by injury, ill-health, or old age. Some government programs deliver specific goods and services directly as in-kind transfers, such as when public schools deliver education services, government programs provide free medical services, or international aid programs deliver food.

dependency needs: the need to have others provide one with care, shelter, food, etc. when one is unable to provide these for oneself

In the United States, the government runs various cash transfer programs designed to help households achieve income security. Economists often distinguish between two major types.
In the case of **social insurance programs**, transfers are designed to help people if certain specific events occur. Since no one can predict how long into old age they will live, or whether unfortunate events will befall them, it is difficult for a worker to know just how much to save for retirement or “for a rainy day.” By coming together to create a pool of social insurance, people can be assured of basic provisioning even if their personal needs turn out to exceed their personal savings. Social insurance programs in the United States include the federal Social Security and Medicare programs (mostly for retired persons) and programs at all levels of government that have been designed to help workers and their families should a worker suffer a disability or a period of unemployment. Eligibility for these programs generally depends on a family member having been in the paid labor force for a period of time, but does not depend on the income or wealth of the recipient.

**Means-tested programs**, on the other hand, are intended to help people who simply have insufficient resources. Unlike most of the social insurance programs, recipients do not need to have established a substantial history of market work in order to qualify for means-tested benefits. Also unlike the social insurance programs, recipients must demonstrate that their other means of support (income and resources) are very low. In recent years, access to means-tested programs in the United States has become increasingly restrictive, with many now limiting assistance to a certain number of months and/or requiring recipients to work a minimum number of hours per week to stay eligible.

**social insurance programs**: programs designed to transfer income to recipients if and when certain events (like retirement or disability) occur

**means-tested programs**: programs designed to transfer income to those most in need

Other funds flow *towards* the government. The federal income tax collects taxes on both wage income and many forms of capital income. Most states also collect income taxes, and you are probably familiar with state sales taxes from your purchases at retail stores. Many localities collect taxes on real estate, figured as a percentage of the value of the property. A **progressive income tax** system is a system that taxes higher income households more heavily, in percentage terms, than lower income households. A progressive tax embodies the principle that those with high incomes should pay more in taxes because of their greater ability to pay without critical sacrifices. While a very poor household, for example, might have to give up eating some meals in order to pay even a small percentage of their income in taxes, a very rich household could pay a substantially larger percentage without much loss in well-being. A **proportional income tax** applies the same percentage tax rate to all income levels. A **regressive income tax** applies a higher tax rate to poorer households.

**progressive income tax**: a tax which collects a larger share of the income from those most able to pay

**proportional income tax**: a tax which collects the same share of income from households, no matter what their income level
regressive income tax: a tax which collects a larger share of income from poorer households

For example, a 10% proportional tax would collect $1,000 from someone with an income of $10,000 per year, and $100,000 from someone with an income of $1,000,000 per year. If, instead, the system collected 10% from the poorer person and more than 10% from the richer, it would be progressive. If the richer person pays a smaller percentage, the tax is regressive. In the U.S. the federal income tax is a progressive tax, although the rates paid by the highest earners have dropped over time. Sales taxes on basic consumer goods, on the other hand, tend to be regressive, since poorer people spend a larger proportion of their income on such goods.

3.3 The Distribution of Income

In the previous sections we discussed the broad sources of household income. But how is income distributed across households? Where do you stand, in terms of outcomes of the distributinal process? Is your family in the top, middle, or lower portion of the income distribution?

The U.S. Census Bureau has, for a number of decades, published information on the distribution of incomes in the United States, as shown in Table 3.1 for 2003. The Census Bureau measures incomes by summing up households’ incomes from wages and salaries, rent, interest, and profits, and cash transfer payments received from government agencies.

Table 3.1 Distribution of U.S. Household Income in 2003

<table>
<thead>
<tr>
<th>Group of Households</th>
<th>Share of Aggregate Income</th>
<th>Lower Limit of Each Fifth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poorest fifth</td>
<td>3.4 %</td>
<td>$17,984</td>
</tr>
<tr>
<td>Second fifth</td>
<td>8.7 %</td>
<td>$34,000</td>
</tr>
<tr>
<td>Middle fifth</td>
<td>14.8%</td>
<td>$54,453</td>
</tr>
<tr>
<td>Fourth fifth</td>
<td>23.4%</td>
<td>$86,867</td>
</tr>
<tr>
<td>Richest fifth</td>
<td>49.8%</td>
<td>$154,120</td>
</tr>
<tr>
<td>Richest 5%</td>
<td>21.4%</td>
<td>$154,120</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau, Historical Income Tables – Households, Tables H-1, H2.

To understand what this table means, imagine dividing up U.S. households into five equal-sized groups (called “quintiles”), with the poorest households all in one group, and then the next poorest in the next group, and so on. The last group to be formed has the richest one-fifth (or 20%) of households. The highest-income household in the poorest group would, according to Table 3.1, have an income just short of $17,984. This group, the poorest fifth, received 3.4% of all the household income in the country. The
richest fifth, those with incomes of $86,867 or more, received 49.8%—essentially half—of all the income received in the United States.

Suppose we look at just the top 5% of households by income. Households in this very top group have annual incomes above $154,120. In 2003, this group—containing one-twentieth of the total population—received just over one-fifth of the total income in the country.

3.4 Measuring Inequality

Economists frequently use a graph called the Lorenz curve—named after the statistician who first developed the technique—to describe the pattern of inequality within an economy. A Lorenz curve for household income in the United States, based on the data in Table 3.1, is shown in Figure 3.4. To construct this curve, you first draw a rectangle, as shown in the figure. The horizontal axis represents households, lined up from left to right in order of increasing income. The vertical axis measures the cumulative percentage of total income received by households up to a given income level.

**Lorenz curve:** a line used to portray an income distribution, drawn on a graph with percentiles of households on the horizontal axis and the cumulative percentage of income on the vertical axis.

Figure 3.4 Lorenz Curve for U.S. Household Income, 2003

A Lorenz curve is a way of graphically portraying an income distribution. For example, point C indicates that the poorest 60% of households received about 27% of total household income. If income were perfectly equally distributed, the Lorenz curve would be a straight line from the origin to point F.
In our example, the data shown in Table 3.1 are entered into the Lorenz curve in Figure 3.4 as follows. First, point A represents the fact that the lowest 20% of households received 3.4% of total income. Point B indicates that the lowest 40% of households received 3.4% + 8.7% = 12.1% of total income; point C indicates that the lowest 60% of households received 3.4% + 8.7% + 14.8% = 26.9% of total income; point D similarly shows the income of the lowest 80%, and point E the income of the lowest 95%. The Lorenz curve must start at the origin, at the lower left corner of the square (since 0% of households have 0% of the total income) and end at point F in the upper right corner (since 100% of households have 100% of the total income).

If income were distributed equally among all households, the Lorenz curve would be a straight line connecting the origin and point F (the diagonal line in Figure 3.4). This line thus represents a situation of maximum equality. At the other extreme, if one household received all the income, then the Lorenz curve would hug the horizontal axis until all but the very last household was accounted for and then shoot up to point F, just in front of the right-hand-side vertical axis. Such a line would represent a situation of maximum inequality.

In all real situations, Lorenz curves for distributions of income will fall between these extremes. Graphically, the curve will sag downward to some extent below the diagonal — as in Figure 3.4. The more the curve sags, the greater is the extent of inequality in the income distribution. This observation led an economist by the name of Corrado Gini to introduce a numerical measure of inequality known as the Gini ratio, which is defined as the ratio of the area between the Lorenz curve and the diagonal to the total area under the diagonal line.4 Referring to areas A and B in Figure 3.5, the Gini ratio is $A/(A+B)$. Clearly, the Gini ratio can vary from 0 for perfect equality to 1 for complete inequality. The Gini ratio for U.S. household income in 2003 was 0.464.

### Gini ratio: a measure of inequality, based on the Lorenz curve, that goes from 0 (perfect equality) up to 1 (complete inequality)

The Gini ratio for the U.S. is higher than that of all other industrialized countries, signifying that the U.S. has a greater degree of income inequality. The Gini for Canada, for example, is about 0.32, while the United Kingdom has a Gini of 0.36, Germany about 0.30, and Japan and Sweden both about 0.25. Countries with more unequal distributions of income than the U.S. tend to be less industrialized countries, like Brazil (0.59) and Nigeria (0.51).5

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4 Sometimes this is called the Gini “coefficient.”

5 The World Bank. *World Development Indicators*. Data are generally from the 1990s. Because of differences in methods of calculation, the Gini coefficient for the U.S. in the World Bank data is .41.
Perhaps, you might object, something is wrong with the measure of income we are using. Shouldn’t the effect of tax and transfer programs be more fully included? The U.S. Census Bureau has experimented with at least 15 different definitions of personal income, each of which includes a different way of accounting for income, taxes and transfers. In one definition, for example, it subtracts the value of government transfers and adds in the value of health insurance fringe benefits paid by businesses for their (often middle-class or higher) employees and the value of net capital gains (discussed later in this chapter, these are usually earned by the relatively wealthy). Under this definition, the Gini ratio, not surprisingly, rises to over 0.5, showing greater inequality. The share of the bottom fifth drops considerably, while the share of the top fifth rises. Another measure adjusts for the effects of the tax system. This causes some change at the top, but little at the bottom. When they further add in the effects of both cash and non-cash government transfer programs (such as food stamps), the Gini ratio drops down closer to 0.4.

Government tax and transfer policies—and especially the transfer side—have significant effects on the U.S. household income distribution. Even with the most thorough accounting for transfer aid to low-income households, however, the income of the top fifth of the population is still roughly ten times that of the bottom fifth.

Some important goods and services are obtained, of course, without the use of cash income. Many families prefer to produce at least some services (such as child care and cooking) for themselves. In addition, many of the things we enjoy, such as pleasant parks, safe roads, or clean air add to our well-being without requiring payments out of our cash income. If we were to look at the distribution of well-being rather than just the
distribution of income, we would need to take account of these non-income sources of important goods and services. No such comprehensive study has been done. Some of these goods may contribute to lessening inequality – for example, everyone, rich or poor, can enjoy a public park or use a public library. Evidence suggests, however, that at least in some cases the distribution of such non-purchased goods may accentuate, rather than lessen, measures of inequality. Proponents of “environmental justice” for example, point out that polluting industries and toxic waste disposal sites tend to be disproportionately located near poor and minority communities.

3.5 Income Inequality Over Time

The U.S. household income distribution has been recorded every year since 1967. A similar but not quite identical measure, the family income distribution, has been recorded since 1947. These data show that inequality was gradually decreasing—that is, income was becoming more equally distributed—until 1968. In that year, the Gini ratio for household income was 0.388, the lowest (most equal) on record in the United States. Since 1968 the Gini ratio has increased in almost every year.

Figure 3.6 shows what has happened in recent decades at the very top and the very bottom of the income distribution. The general trend has been for a larger share of income to go to the very richest households (from about 17% in 1968 to about 22% in 2003), while the share going to the bottom (and, not shown in this figure, the middle) quintile(s) has gradually fallen.

Figure 3.6 Income Shares of the Richest and Poorest Households, 1968-2003

Inequality in the United States has been increasing since 1968. The share of the richest households in aggregate income rose from about 17% to about 22%, while the share of the poorest 20% of the population fell from about 4% to about 3.5%.
Why has income inequality been increasing in the United States over this period? One point economists agree on is that some of the increase in inequality has been due to changing demographic characteristics of the U.S. population.

Increases in the proportion of the population that is aged, and increases in single parenthood, have tended to drive down incomes at the low end. People too old to work and people in single-parent households (where paid work and caring activities compete for a limited resource—the adult's time) often lack economic resources. About 18% of U.S. children live in poor families. Meanwhile, the entry of women into the labor force in increasing numbers has helped boost the incomes of married-couple households at the top. Demographic change, however, is only part of the story and cannot explain the whole pattern of increasing inequality. Economists continue to debate the relative importance of at least three other explanations. (Note that all three explanations propose reasons why the poor have become poorer or more numerous, while the third one also addresses why the rich have gotten richer.)

First, international trade has been increasing. Competition from imports has eliminated many industrial jobs that formerly fell in the middle of the U.S. income distribution. If middle-income industrial jobs are replaced by lower-income service and retail jobs, inequality will increase.

Second, new technologies such as computers and biotechnology have become more important, increasing the incomes of skilled workers who understand and use the new techniques and equipment, while leaving behind the less-skilled workers who remain in low-technology occupations.

Finally, unions have grown weaker and government policy has become markedly less supportive of unions and low-wage workers, while the compensation given to top executives and board members of large corporations has skyrocketed. According to studies done by Business Week, in 1980 chief executive officers (CEOs) of large U.S. corporations earned an average of 42 times the amount earned by the average hourly worker. In 1990, they earned 85 times as much. In 2000, they earned 531 times as much.

In short, along with demographic change, global competition, technology, or changes in government and business policies—or some combination of these factors—may account for the rise in inequality within the U.S.

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6 A household is defined as poor if its income falls below a poverty threshold based on its family size. In 2006, the poverty threshold for a family of four was $20,000.

7 See Business Week Online, "We're Back to Serfs and Royalty" by Jennifer Gill, April 9, 2001. http://www.businessweek.com/careers/content/apr2001/ca2001049_100.htm
In 2000 the average annual salary of the CEOs at the 365 largest U.S. companies was $13.1 million; the average annual income of an hourly worker was $24,649.
3.6 Wealth Inequality

The distribution of wealth—what people own in assets (a stock)—tends to be much more unequal than the distribution of income—what people receive in the course of a year (a flow). Most people own relatively little wealth, relying mainly on labor income and/or government, nonprofit, or family transfers to support their expenditures. It is possible to have negative wealth. This happens when the value of a person’s debts (such as for a car, house, or credit cards) is greater than the value of her assets. For people in the middle class, the equity they have in their house is often their most significant asset. On the other hand, those who do own substantial physical and financial wealth are generally in a position to put much of it into assets that increase in value over time and/or yield flows of capital income—which can in turn be invested in the acquisition of still more assets.

The distribution of wealth is, however, less frequently and less systematically studied than the distribution of money income. Partly, this is because wealth can be hard to measure. Much wealth is held in the form of unrealized capital gains. A household receives a capital gain if sells an appreciated asset, such as shares in a company, land, or antiques, for more than the price at which it purchased the asset. An asset may appreciate in value for a long time before it is actually sold. No one, however, will know exactly how much such an asset has really gained or lost in value until the owner actually does sell it, thus “realizing”—turning into actual dollars—the capital gain. Another reason why it is harder to get information on wealth is that—while people are required to report their annual incomes from wages and many investments for tax purposes—the government does not require everyone to regularly and comprehensively report their asset holdings.

| capital gain: an increase in the value of an asset over time |

One study estimates that the Gini ratio for the distribution of wealth in the United States was .83 in 2001—indicating much more inequality than is found in the distribution of income.\(^8\) It has been estimated that in 1998 the top 1% of U.S. households owned about 38% of all household assets, and the top 10% owned about 71%, while the bottom 40% owned only 0.2%.\(^9\)

Discussion Questions

1. In your own life so far, how big a role has exchange played in giving you what you need to live? (That is, to what extent have you received assets, goods, or services because of something specific you have traded in return?) How big a role has transfer played? Do you expect this to change in coming years?

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2. What do you think is the minimal amount of income an individual, or a small family, would need to live in your community? (Think about the rent or mortgage on a one- or two-bedroom residence, etc.) What does this probably mean about where the average level of income in your community fits into the U.S. income distribution shown in Table 3.1?

4. The Three Spheres of Economic Activity

Economic activity takes place in three major spheres, which we designate here as the core, public purpose, and business spheres. Economists often refer to these groups as household, government, and business spheres. In this chapter, however, we use the term “core” instead of “households,” in order to emphasize the importance of communities, in addition to households, in the "core" activities described below. (Think of the maxim, "It takes a village to raise a child"). We use the term "public purpose" instead of “government,” to include both government and nongovernmental nonprofit organizations whose activities are of growing importance in modern societies. We will explore the roles of the core, public purpose, and business spheres below.

4.1 The Core Sphere

Long before the invention of money, of organized markets, and of systems of government, human societies organized themselves along lines of kinship and community to undertake the economic activities essential to maintaining and improving the conditions for human life. The **core sphere** is made up of household, family, and community institutions that organize resource management, production, distribution, and consumption, usually on a small scale, and largely without the use of money.

| core sphere: households, families, and communities. |

One distinguishing characteristic of the core sphere is how work activities are rewarded: instead of extrinsic monetary rewards, work tends to be rewarded directly by what it produces. For example, work in a home garden is rewarded with tomatoes, and the reward of good child care is a happy and healthy child. People may volunteer their services to their community because they recognize that living in a healthy community is important. People play cards, soccer, or music together because they find these activities intrinsically enjoyable. Another distinguishing characteristic is that core sphere activities tend to be organized to respond to immediately perceived needs—rather than, for example, to the ability to pay.

The core economy is the central location of many important economic activities that sustain human life. These include

**Child bearing and child raising.** Parents—even when assisted by family-planning services, child care centers, public schools, extended family, and the like—still carry the primary responsibility for fertility decisions and for caring for and nurturing children.
Bearing and rearing a child is the ultimate “human capital” activity—populating the society for the future. Younger children need direct feeding, dressing, bathing, holding, and responsive interaction with caring adults. Older children need less hands-on care but still need supervision and help in learning many physical, mental, and emotional skills. Much of the work of childrearing also involves the building up of “social capital”—helping children function in larger communities. Community supports like playgroups and carpools can also assist in the productive activities of childrearing work.

Decisions regarding investing in skills and education. Other human capital decisions are also often made on a household basis. How long children stay in school, or whether an adult goes for further education or training, are often household decisions.

Care of the sick, elderly, or otherwise needy. In countries like the U.S., hospitals, nursing homes, mental health clinics, and other institutions exist for people who are acutely ill or incapacitated. However, families, friends, and neighbors remain the first source of support for people with dependency needs. People who are temporarily mildly ill, recovering from surgery, or upset over life events are primarily cared for by friends and family. People with chronic mental or physical health problems may require considerable support services from their families and other people in their communities, perhaps for decades.

The final stage of production of many goods and services. Pasta cannot be eaten until it is cooked. A vacuum cleaner provides no services until someone plugs it in and pushes it around. Grass seed does nothing until someone plants it. Household production activities like cooking, cleaning, and house and yard maintenance convert many goods and services (often bought on markets) into forms suitable for final use. These production processes generally involve the use of labor time, materials, and the services of household capital goods (such as stoves and lawn mowers).10

The organization of savings and investment. Households decide how much of their cash income to allocate to saving. They also decide how to allocate their financial saving—whether to hold them in retirement funds, real estate, money market funds, etc. While households also save through more structured (and less voluntary) channels like pension plans, the savings decisions of individual households are of much interest to macroeconomists. Family and friends also frequently use savings to make gifts or loans among themselves—for example, to finance food and rent in times of need, or to help a friend or relative to acquire the funds for a house down payment or to start a business.

The allocation of consumption spending. Households are the final decision makers about whether to buy denim pants or DVDs, hybrid cars or SUVs. As we will see, the level and composition of consumption in an economy as a whole plays an important role in determining macroeconomic living standards, stability, and sustainability.

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10 As we will see in Chapters 5 and 6, national accounting frameworks have been slow to recognize the importance of household production.
Decisions regarding the supply of labor services. Decisions to work in the labor market, to become self-employed, or to engage in household production are often made not simply by individuals, but by households as part of a joint plan for family support.

The organization of the use of leisure time. Besides putting in work time in core sphere production, people enjoy “play” time with their family, friends, and neighbors as well. Vacations and visits are very often planned on a family basis, and activities of recreation and relaxation are largely organized around core sphere networks of family and community. Having leisure time, and the goods and services to enjoy it with friends and family, is a substantial component of the standard of living.

When the core sphere is working effectively to support the quality of life, important goods and services are provided to many, many people, even if the scale of production in each specific case is quite small. Because most core sphere activities involve face-to-face interaction, the core sphere is the primary location in which the ability to form good social relations is developed.

Of course, core spheres can also work badly or inadequately. For example, responsibilities for children or elderly and ill people may be inequitably assigned between women and men. Such responsibilities may also overwhelm the personal resources of impoverished families and communities. There are limits to what can be accomplished within small-scale, largely informal networks of personal relations. For many economic goals, more formal and larger-scale organizations are also needed.

4.2 The Public Purpose Sphere

Kinship and community were the earliest modes of human organization, but larger organizations soon arose. Communities found advantages to banding together in larger groups for mutual protection, increased social contact, etc.

The public purpose sphere includes governments and their agencies, as well as nonprofit organizations such as charities and professional associations, and international institutions like the World Bank and the United Nations.

The distinguishing characteristic of these institutions is that they exist for an explicit purpose related to “the public good” — that is, the common good of some group larger than a household or informal community. Their definitions of "the public good," however, may vary widely and may even contradict one another. They are charged with purposes such as defending a country’s borders, relieving poverty, providing formal health care and education, protecting the natural environment, and stabilizing global financial markets.

| public purpose sphere: governments and other local, national, and international organizations established for some public purpose beyond individual or family self-interest, and not operating with the goal of making a profit |
Organizations in the public purpose sphere tend to be larger and more formally structured than those in the core sphere, and usually they are more monetized. Work is often motivated by a mixture of pay and volunteerism. Jobs in nonprofit organizations often pay less than jobs of equivalent skill and responsibility in the business sphere. It is sometimes said that government employees are in “public service.”

We can break down the economics functions of public purpose organizations into two general categories: regulation, where the public purpose organization sets rules or standards for the actions of other economic entities, and direct provision, where a public purpose organization itself takes on economic activities.

**Regulation.** One very basic function of public purpose organizations is to **regulate** economic activities—that is, to set the standards and “rules of the game” by which other economic actors will “play.” Public purpose organizations that promote, legislate, or enforce property rights, rules about contracts or disclosure of information, laws, or norms of obligation; promulgate standards; and/or perform other coordinating functions create the legal and social infrastructure for economic activity.

Many people think of “regulation” entirely in terms of “government regulation,” and it is true that the government sets many rules and standards with which other economic actors are legally obligated to comply. Government regulation of financial and securities markets, for example, plays an important role in macroeconomics. However, many nonprofit groups participate in regulating economic activity, particularly in the area of standard setting. For example, chances are you have taken a standardized exam like the AP, SAT I or II, GRE, GMAT, or TOEFL. These are all developed and administered by the Educational Testing Service, which is a large private nonprofit organization. While we might not commonly think of such privately provided standards as “regulation,” the standards implicit in these exams do, in fact, influence what is taught by institutions, if they wish their students to be well prepared for taking them. Public purpose organizations often provide the legal, social, and informational infrastructure that both support and constrain other actors in their economic activity.

**regulation:** setting standards or laws to govern behavior

**Direct Provision.** Public purpose organizations produce many goods and services, including national defense, physical infrastructure like highways and port facilities, and such services as education and, in many countries, health care. Direct public provision is often used to supply goods that cannot be supplied equitably or efficiently by private provision. Some goods are provided by the public purpose sphere because, as a society, we believe that everyone should have access to them, regardless of the kind of family or community they were born in and regardless of their ability to pay. Public schooling from kindergarten through high school is a primary example. In large U.S. cities, public hospitals provide necessary emergency medical care to the poor and uninsured.11

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11 Compared to Canada and most of Europe, the United States puts less resources into these activities. For example, Canada and most European countries have more extensive public health systems, which provide
Nonprofit organizations also often offer services related to education, health, and welfare. Both governments and private charities often transfer income to people in need. Other goods and services are provided by public purpose organizations because they are of a type that is called a “public good”, as discussed in Chapter 2. Sometimes it is more efficient for a public purpose organization to provide a good or service because of the presence of significant externalities, transaction costs, market power, or advantages to centralized information (as also discussed in Chapter 2).

Although in some instances public purpose organizations offer goods and services for sale, much as businesses do, this is generally not their primary focus. Public purpose organizations usually raise much of the money they need to function by soliciting (or, in the case of governments, requiring) monetary contributions in the form of taxes, donations, or membership fees.

The interplay of governments and nonprofits in providing and regulating services can be quite complex. For example, in the United States the government Securities and Exchange Commission (SEC) regulates the exchange of securities such as stocks and bonds. The SEC accepts what are called Generally Accepted Accounting Principles (GAAP) as the authoritative standard for financial reporting. These principles are actually written, however, by the nonprofit Financial Accounting Standards Board.12

The main strength of public purpose institutions is that (like core institutions) they can provide goods and services of high intrinsic value, but (unlike core institutions) they are big enough to take on jobs that require broader social coordination. Unlike the business sphere, the provision of goods and services itself, and not the financial results of these activities, remains the primary intended focus of public purpose organizations.

The public purpose sphere has its weaknesses, of course. Compared to the core sphere, the government, in particular, is often criticized as being cold and impersonal. Compared to the business sphere, institutions in the public purpose sphere are sometimes accused of being rigid, slow to adapt, and made inefficient by an overgrowth of regulations and a bloated bureaucracy. Organizations can lose sight of the intrinsic, common-good goal of providing “public service” and become more interested in increasing their own organizational budget. Because public purpose organizations are commonly supported by taxes or donations that are often not tightly linked to the quality of their services, they may not have financial incentives to improve the quality of what they provide. Many current debates about reforms in governments and nonprofits concern how incentives for efficiency can be improved without eroding the orientation of these organizations towards goods and services of high intrinsic value.

widely accessible nonemergency care as well. France and the Canadian province of Quebec provide highly subsidized care and education for prekindergarten children.

12 The stated mission of the Financial Accounting Standards Board is “to establish and improve standards of financial accounting and reporting for the guidance and education of the public, including issuers, auditors and users of financial information.” (http://www.fasb.org/facts/index.shtml)
4.3 The Business Sphere

The U.S. government defines businesses as “entities that produce goods and services for sale at a price intended at least to approximate the costs of production.”13 The business sphere is made up of such firms. A business firm is expected to look for opportunities to buy and manage resources in such a way that, after the product is sold, the owners of the firm will earn profits.

**business sphere**: firms that produce goods and services for profitable sale

Whereas the core sphere responds to direct needs, and the public purpose sphere responds to its constituents, business firms are responsive to demands for goods and services, as expressed through markets by people who can afford to buy the firms' products.

Private for-profit enterprises in the United States and many other countries fall into four main legal forms: proprietorships, partnerships, corporations, and cooperatives. Proprietorships are businesses owned by single individuals or families. Partnerships are owned by a group of two or more individuals. Corporations are business firms that, through a process of becoming chartered by a state or federal government, attain a legal existence separate from the individuals or organizations who own it. Individual owners can come and go, but the corporation remains. If the corporation goes bankrupt and is forced to dissolve, the owners of a corporation cannot lose more than their investment. On the other hand, there is no legal limit to the profit they can make if the corporation is successful. This asymmetry, along with its other legal advantages, makes the corporation the preferred structure for major business activities in most countries.

Corporations that issue stock are governed by shareholders according to the principle of one-share, one-vote. In principle, at least, shareholders elect a board of directors, who in turn hire professional managers to run the day-to-day operations of the corporation.14 Cooperatives, in contrast to corporations, cannot issue stock and are governed by a different ownership principle. Each member of the cooperative, no matter what his or her position, has one and only one vote. In practice, cooperatives are owned by one of three groups: their workers, their suppliers, or their consumers.

A strength of business organization is that, because businesses have at least one clear goal—making profit—they may operate with superior efficiency. A profit orientation is commonly thought to drive firms to choose the most valuable outputs to produce, and to produce them at the least possible cost. The profit motivation is often thought also to encourage innovation: people are more motivated to come up with clever new ideas when they know they may reap financial rewards. We all benefit, in terms of

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14 In fact, shareholders often lack the power to propose directors other than those put forward by the existing board and/or management. There are ongoing struggles between investors and corporate management about how or whether to increase the investors’ control in this respect.
our material standard of living, from business efficiency and innovations that bring us improved products at lower prices.

The relative weakness of the business sphere comes from the fact that business interests may or may not coincide with overall social well-being. Firms may act to enhance social well-being—for example, by making decisions that consider the full needs of their customers and their workers and take into account externalities, including those that affect the natural environment. They may be guided in these directions by the goodwill of their owners and managers, by pressure from their customers or workers, or by government regulation. Production for market exchange, however, has no built-in correction for market externalities. And sometimes “innovation” can take a perverse form. Enron Corporation, for example, in the late 1990s and early 2000s boosted its reported earnings primarily by inventing unusual and “innovative” accounting practices, which served to hide the extreme weakness of its financial situation from investors. In fields such as health care and education, where it can be difficult to define clear goals, businesses may increase profits by “innovatively” cutting corners on the less measurable and less-often-marketed aspects of quality of life.

4.4 A Comparative Note: Less Industrialized Economies

Many less industrialized economies have large informal spheres of small market enterprises operating outside of government oversight and regulation. Although this sphere could be classified as “business” because it involves private production for sale, it is also similar to the “core sphere” in that the activities are very small-scale and often depend on family and community connections. Like the core sphere, informal business activities are often ignored in government-compiled accounts.

In the United States, street-level illegal drug trades and housecleaning services provided “off the books” by illegal immigrants would be two examples of the “informal” sphere. In less industrialized counties, however, it is sometimes the case that most people are employed in small-scale agriculture, trade, and services that often go uncounted.

The informal sphere is made up of businesses operating outside of government oversight and regulation. In less industrialized countries it may constitute the majority of economic activity.

If we were focusing mainly on less developed countries, it would be necessary to pay a great deal more attention to the complicating reality of "informal" economic activity and perhaps to discuss it as a fourth sphere. For industrialized economies, however, we can deal with this issue by simply noting, as we have just done, that it could legitimately be classified as occurring within either the business sphere or the core sphere, leaving open the question as to which of these classifications is more appropriate.

Discussion Questions

1. Education is sometimes provided within the core sphere (at-home preschool activities, and home schooling), often provided by the public purpose sphere (public and nonprofit
schools), and occasionally provided by for-profit firms (“charter schools” or firms offering specific training programs). Can you think of some possible advantages and disadvantages of each type of provision?

2. Make a list of several things that, over the last few days, you have eaten, drunk, been entertained by, been transported by, been sheltered by, or received other services from. (For example, “dinner at Gina’s,” “my apartment,” “the health clinic,” etc.) Then, using the definitions above, determine which of the three spheres provided each item.

**Review Questions**

1. What are the four essential economic activities?
2. What four types of capital contribute to productivity? Describe.
3. How does economists use of the term “capital” differ from common use?
4. What do economists mean by “investment”?
5. Describe the economic activity of production.
6. What are the two main forms that the activity of distribution takes? Describe.
7. Describe the relationship between consumption and saving.
8. Describe the difference between a stock and a flow, giving examples.
9. Explain the difference between gross and net investment.
10. What is the difference between renewable and nonrenewable resources?
11. What is the precautionary principle?
12. What is a sustainable socioeconomic system?
13. What are the two major forms of income received in exchange?
14. What is the main reason for transfer programs?
15. What is the difference between mean-tested and social insurance programs?
16. Describe progressive, proportional, and regressive taxation.
17. What share of aggregate income does each quintile of households receive?
18. What is a Lorenz Curve? What does it measure?
19. What is the Gini ratio? What does a higher value of the ratio signify?
20. Has income inequality decreased or increased over recent decades? What are some of the reasons?
21. Is wealth or more less equally distributed than income? Why?
22. What are the three spheres of economic activity?
23. What are some major characteristics and functions of the core sphere?
24. What are some major characteristics and functions of the public purpose sphere?
25. What are some major characteristics, and strengths and weaknesses, of the business sphere?
Exercises

1. Which of the following are flows? Which are stocks? If a flow, which of the five major kind(s) of capital does it increase or decrease? If a stock, what kind of capital is it?
   a. the fish in a lake
   b. the output of a factory during a year
   c. the income you receive in a month
   d. the reputation of a business among its customers
   e. the assets of a bank
   f. the equipment in a factory
   g. a process of diplomatic negotiations
   h. the discussion in an economics class

2. Which of the following are examples of exchange? Of transfer?
   a. De Beers mining company sells diamonds to wholesalers.
   b. De Beers mining company takes diamonds from the mines.
   c. You pay interest on credit card balances.
   d. Your bank donates posters for a local community fair.

3. Statistics from the government of Thailand describe the household income distribution in that country, for 2000, as follows.\(^{15}\)

<table>
<thead>
<tr>
<th>Group of Households</th>
<th>Share of Aggregate Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poorest fifth</td>
<td>5.5%</td>
</tr>
<tr>
<td>Second fifth</td>
<td>8.8%</td>
</tr>
<tr>
<td>Middle fifth</td>
<td>13.2%</td>
</tr>
<tr>
<td>Fourth fifth</td>
<td>21.5%</td>
</tr>
<tr>
<td>Richest fifth</td>
<td>51.0%</td>
</tr>
</tbody>
</table>

   a. Create a carefully labeled Lorenz curve describing this distribution. (Be precise about the labels on the vertical axis.)
   b. Compare this distribution to the distribution in the United States Would you expect the Gini ratio for Thailand to be much higher or lower? Why?

4. Match each concept in Column A with a definition or example in Column B.

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. an important function of the core sphere</td>
<td>i. fish in the ocean</td>
</tr>
<tr>
<td>b. social capital</td>
<td>ii. regulation</td>
</tr>
<tr>
<td>c. progressive taxation</td>
<td>iii. a very unequal income distribution</td>
</tr>
<tr>
<td>d. a nonrenewable natural resource</td>
<td>iv. taxation that collects proportionally more from the poor</td>
</tr>
<tr>
<td>e. capital gain</td>
<td>v. what you are adding in the way of new computers to your office, minus what has become obsolete</td>
</tr>
<tr>
<td>f. quintile</td>
<td>vi. a gift of food</td>
</tr>
<tr>
<td>g. an important function of the public purpose sphere</td>
<td>vii. a house you own increases in value over time</td>
</tr>
<tr>
<td>h. net investment</td>
<td>viii. a shared language within a community</td>
</tr>
<tr>
<td>i. regressive taxation</td>
<td>ix. a very equal income distribution</td>
</tr>
<tr>
<td>j. a Gini ratio close to 1</td>
<td>x. decisions regarding skills and education</td>
</tr>
<tr>
<td>k. a renewable natural resource</td>
<td>xi. a group containing 20% of the total</td>
</tr>
<tr>
<td>l. manufactured capital</td>
<td>xii. taxation that collects proportionally more from the rich</td>
</tr>
<tr>
<td>m. in-kind transfer</td>
<td>xiii. a factory building</td>
</tr>
<tr>
<td>n. a Gini ratio close to 0</td>
<td>xiv. iron ore</td>
</tr>
</tbody>
</table>

5. Suppose a tax system is set up as follows: everyone gets to subtract $3,000 from their income, and then pays the government 20% of the rest. Is this tax proportional, progressive, or regressive? Show your reasoning. (Hint: calculate what households with incomes of $10,000 per year, $50,000 per year, and $100,000 per year would pay in taxes, and the percent their taxes represent of their total income.)