Chapter 20

ECONOMIC CONCEPTS

INTRODUCTION

This chapter explores the key concepts of economics. A complete and in-depth discussion of all aspects of economic theory is far beyond the reach of this chapter. However, this chapter does discuss certain basic and universal concepts, the components of the microeconomic theory, such as consumer behavior and price elasticity based on demand, and macroeconomic theory, such as Keynesianism, Monetarism, rational expectations, supply-side economics, government fiscal and monetary policies, inflation, and interest rates. Given the importance of business cycles to both investors and businesses, the chapter looks at the features of business cycles and the composite economic indicators economists use to predict turns in the growth in the economy. In the final sections, the chapter discusses inflation, deflation, and disinflation; and explores yield curves and what they may reveal regarding future economic activity.

How Does It Work? (BASIC CONCEPTS)

Despite the fact that the economies of the United States and most of the western world are based, more rather than less, on capitalist principles, average citizens and even many businesspersons are woefully ignorant of the tenants of capitalism and general economic concepts. Although capitalism is not the only organizing basis for economic systems, it generally has proven to be the most efficient or effective at allocating and using scarce resources to enhance economic prosperity when combined with political systems that maintain the rule of law, the rights to contract, the courts and tort system, and competitive market structures.

Scarcity

A key concept of economics is scarce resources. Regardless of which economic system one is talking about, they all deal with the issue of the allocation of scarce resources. Resources are the inputs to any economy – the land, labor, minerals, knowledge, technology, time, etc. – necessary to produce outputs or goods, or homes, cars, food, entertainment, medical care, services, and all the other gizmos we use and consume). All resources are scarce. Therefore, the objective of the economic system and business is to use these scarce resources in the most effective and efficient way possible so as to produce the greatest possible amount of goods with the given inputs, while minimizing waste.

Nobel Prize-winning economist Milton Friedman captured the practical implication of this concept of scarce resources perfectly with his universal, timeless, and ubiquitously-quoted maxim:

*There Is No Free Lunch.*

Opportunity Cost

Every output – each “lunch” – uses up inputs, whether one personally pays for them or not. The cost for this lunch is equal to whatever else could have been produced with those inputs used in their most effective and efficient manner. In other words, there is always a trade-off and the cost is the opportunities foregone as a result of using the inputs for one purpose, rather than some other purpose; hence, the term “opportunity cost.”

Time Value

Another universal economic concept is a corollary of the concepts of scarcity and that is:

*Time Is Money.*

A dollar today is always worth more than a dollar tomorrow. Money is simply a convenient medium of exchange that represents claims on the economy’s resources. A dollar today can be consumed (used to purchase goods) or invested (used to purchase inputs). In either case, it is worth more than a dollar tomorrow, or next year, or 10 years from now, because it could be used to purchase inputs that could be employed to produce more than one dollar’s worth of outputs or goods in the future.

Supply, Demand, Marginal Pricing, and Equilibrium

All economics is about supply and demand. The basic premise is simple and obvious. All goods are scarce in the sense that if the good were free, people would want to consume more of it than is available. Faced with a shortage at a given price of some good that some consumers desire more than other goods they can acquire for the same expenditure, these consumers will offer to pay more for that good. They will bid the price of that good up to the level where the value of what they feel they are getting from this good, called their marginal utility, exactly matches the value of what they are giving up in terms of other goods they could otherwise purchase with the money spent on this good (the opportunity cost).

Of course, for a given supply of this good, these consumers will be able to acquire the good only if some other consumers drop out of the bidding. So the price that clears the market and matches supply and demand will be the price where the value to the ultimate winners in the bidding for this good, the marginal utility, exactly matches the value, the marginal utility, to those buyers of the other goods they have to give up to purchase this good. All the potential buyers who perceive the value to them to be less than what they could otherwise buy at that price drop out of the bidding. So the price for the good is set at the margin – at the price where the perceived value or marginal utility of all but the winning bidders is less than the price. If one more consumer now enters the market and perceives the value or marginal utility of the good to be greater than the price, he would bid up the price until one of the other consumers dropped out of the bidding. So the market price is set at the margin and reflects the marginal value placed on that good by the last buyer.

But, as was explained above, nothing is free. Producing one sort of good always comes at the cost of foregoing the production of some other sort of good. So producers will continue to produce a good only as long as it is more profitable than producing something else. As long as they can continue to produce the good and sell it for a profit, they will increase their production until they break even relative to what they could earn by producing something else. In other words, they will increase production until the marginal cost of producing one additional unit of the product exactly matches the marginal revenue.

There will always be some point where marginal costs equal marginal revenues, for two reasons. The first is the principle of scarcity discussed above. A producer’s inputs, just like all other goods, are scarce resources. Producers can only make more goods by employing more inputs. However, because the inputs are limited, they ultimately can acquire more inputs only by paying higher prices, so the cost of producing more units must ultimately rise and cut into their profit. Second, as they produce more units of their good, the price at which they can sell those additional units ultimately will have to fall in order to induce more consumers to buy the product.

In summary:

* The basic law of economics is this: *supply equals demand for a price*.
* Equilibrium is the point where market price matches the demand with the supply.
* In general, demand increases with a relative fall in price while supply falls; demand falls with a relative increase in price while supply increases.

**Figure 19.1**

****

**P**

**R**

**I**

**C**

**E**

**I**

**QUANTITY**

**Supply**

**Demand**

**Supply and Demand for Bread**

**E**

WHEN IS THE USE OF THESE TECHNIQUES INDICATED?

MICROECONOMICS

Microeconomics, also called price theory, is the study of individual economic decisions and their aggregate consequences. This approach to economic theory builds concepts from the perspective of the small individuals’ and firms’ actions, and moves up toward the large, government policies, international trade. Components of microeconomic theory include:

* the theory of the firm;
* consumer behavior and utility;
* opportunity costs;
* marginal utility;
* elasticity;
* competitive market structures;
* asset pricing (discussed in Chapter 29, “Investment Planning”).

Theory of the Firm

The theory of the firm is about the economics of business operations and profit maximization. Generally postulating a multiplicative model of two basic inputs, capital and labor, it seeks to find the theoretical capital and labor mix that maximizes firm value. Among the common-sense conclusions derived are that in competitive markets:

1. firms should expand production until the marginal cost (MC) of producing another unit of output equals the marginal revenue (MR) received when selling that unit, i.e., MC = MR;

2. firms should select their optimum mix of labor and capital by balancing the marginal product of capital (MPC) with the marginal product of labor (MPL). That is, the optimal labor/capital mix occurs where adding either one more unit of labor or one more unit of capital will produce the same increase in output, i.e., MPC = MPL.

In addition, the theory of the firm looks at the question of the optimal capital structure between debt and equity to maximize firm value. Franco Modigliani and Merton Miller showed, in their irrelevance proposition, that in an economist's ideal world of complete and perfect capital markets, without differential taxation, and with full and symmetric information among all market participants, the total market value of all the securities issued by a firm is governed by the earning power and risk of its underlying real assets and is independent of how the mix of securities issued to finance it is divided between debt instruments and equity capital. Basically, this proposition says that the value of a firm, like the size of a pizza, remains the same, regardless of how one slices it up, between debt and equity.

However, in the real world, where debt securities are taxed differently than equities, the mix between debt and equity can affect the overall value of both the debt and equity. In this environment, the objective of management is to choose the mix between debt and equity so as to maximize the value of the (owners’) equity in relation to its risk.

Marginal Revenue (MR) and Marginal Cost (MC)

This refers to the incremental cost or revenue associated with the next unit of production and sales.

In competitive markets, the optimal level of production and sales is the level where, for the last unit, marginal revenue equals marginal cost (MR = MC).

For a small producer in a competitive market, MR equals price, a constant essentially given to the producer by the market; he is too small to influence the price. For large producers in protected or otherwise not completely competitive markets, MR tends to decline with the level of production and sales. In other words, additional buyers, beyond those who have purchased at the current price, can be enticed to buy only if they can buy at a lower price.

For most producers, MC may fall as economies of scale (efficiencies of size) reduce costs, but, ultimately, will rise as the scale of production rises.

**Figure 19.2**

**MC**

**MR = P**

**Q**

**Quantity**

**E**

**Marginal Revenue and Marginal Cost**

**Equilibrium**

**R**

**I**

**C**

**E**

**I**

**P**

Consumer Behavior and Marginal Utility

The basic concept here is that consumers seek to maximize the utility of their consumption, subject to the constraints of their income and wealth. Marginal utility (MU) is the added value, usefulness, or benefit of the next unit of a product consumed by the consumer.

In general, the law of diminishing marginal utility holds that the added utility of one additional unit of a good is less than that added by the previously consumed unit. In other words, marginal utility declines as the number of units consumed increases. For instance, the first minute in a shower after a tough tennis match is sheer bliss, but after 20 minutes, the value of one additional minute in the shower becomes negligible, maybe even a disutility. Consumers maximize utility by purchasing just so many units of each desired good that the marginal utility of each good per dollar spent is equal. This will occur where the consumer’s marginal utility equals the cost (C) of one additional unit, i.e., MU = C.

The theory of consumer behavior also addresses such questions as: hours of labor supplied versus leisure hours consumed, and consumption today versus saving and consumption tomorrow. Essentially, the same principles apply in these cases whereby consumers will offer more labor until the value (marginal utility) of what they are paid per hour is equal to the value (marginal utility) of an additional hour of leisure. Similarly, people will save and invest, rather than spend, current income up to the point where the marginal utility of an additional unit of future consumption equals the value of current consumption. Generally, economists assume that people act to maximize the utility of their lifetime consumption, where, among other things, desired bequests or legacies are weighed and valued just like any other good.

Opportunity Costs

This concept was discussed above in the introduction. Although this is a general economic concept, it is generally discussed in the microeconomics section of the economics curriculum. Opportunity cost is the cost of opportunities forgone as a result of taking one action or pursuing one economic activity instead of the best alternative action among all other possible actions.

The concept of opportunity cost arises as a result of scarcity, the general condition that wants and desires are virtually limitless, while the resources to satisfy those wants and desires are limited.

Price Elasticity of Demand

Price elasticity of demand is a measure of the buyer’s responsiveness or sensitivity to changes in price. In some circumstances, such as would certainly be the case with respect to the charge for the antidote to a potentially fatal snake bite, people will be quite insensitive to changes in prices. In other circumstances, such as when buying common 3-inch steel nails or other commodity-like products for which there are many competitors, consumers will shift from one competitor to another at the slightest difference in price.

Formula for the elasticity of quantity demanded.

|  |  |  |
| --- | --- | --- |
| Elasticity of Quantity Demanded | = | % Change in Quantity Demanded |
| % Change in Price |

1. If the elasticity coefficient is greater than 1, the product is price elastic.

2. If the elasticity coefficient is less than 1, the product is price inelastic.

3. Elasticity tends to vary at different price levels and quantities, typically being less elastic at low quantities and high prices (buyers who want it, need it, so they are less sensitive to price) and more elastic at high quantities and lower prices (buyers want it, but they do not need it, so they are more sensitive to price).

**Figure 19.3**

**QUANTITY**

**Price Elasticity
Of Quantity Purchased**

**Elastic**

**Demand**

**Inelastic**

**Demand**

**R**

**I**

**C**

**E**

**I**

**P**

Formula for the elasticity of total revenue.

|  |  |  |
| --- | --- | --- |
| Elasticity of Total Revenue | = | % Change in Total Revenue |
| % Change in Price |

The following table illustrates elasticity of demand.

|  |
| --- |
| **Elasticity of Demand for Hamburger** |
| **Price Per Lb.** | **Total Lbs. Demanded** | Total Revenue | **Elasticity Quantity** | **Elasticity Revenue** |
| $5.004.003.002.001.00 | +25%+33%+50%+100% | 1,0002,0004,0009,00016,000 | -50%-50%-56%-44% | $ 5,0008,00012,00018,00016,000 | -38%-33%-33%+13% | 2.00 **E**1.50 **E**1.10 **E**0.43 I | 1.50 **E**1.00 **E**0.67 **I**0.13 **I** |
| **E** = Elastic **I** = Inelastic |

Competitive Market Structures

The type of market structure influences firm behavior, strategies, and tactics. The key determinants of market structure are product pricing, supply, barriers to entry, efficiency, and competition. When there is a high degree of competition and few barriers to entry in industry, the market is characterized by pure (or close to perfect) competition. Where there is only one firm and/or very high barriers to entry in an industry, the market is characterized by pure monopoly. Of course, these extremes are actually quite rare, so most markets are characterized by some degree of competition in between pure competition and pure monopoly.

Essentially, market structure depends on: (1) how free firms are to enter or exit a market and whether there are any natural, legal, or governmental barriers to entry; (2) whether the product is homogeneous (fungible, e.g., nails) or to what degree each firm can differentiate its product within the market (e.g., perfumes); (3) how much control each firm has over the supply or output of the industry; and (4) how much control the firms have over the price they can charge for the product. Obviously, to some extent, all of these factors are interrelated.

Pure Competition

A purely competitive market is characterized by: (1) entirely free entry and exit to the industry; (2) a homogeneous and undifferentiated product (e.g., commodities such as corn, iron ore, etc., where no consumer has any grounds for preferring one company’s product over that of another); (3) large number of buyers and sellers so that no individual seller or buyer can influence price; (4) sellers are price takers (they have to accept the market price); and (5) perfect or close to perfect information is available to buyers and sellers so that no buyer or seller can exploit the ignorance of others.

Examples of pure or close to perfect, competition markets are U.S. financial markets, such as the stock exchanges, currency markets, bond markets, and the agricultural and commodities markets. The advantages of perfect competition include that a high degree of competition helps allocate resources to most efficient use, prices are set equal to marginal costs, firms make a normal profit in the long run, firms tend to operate at maximum efficiency, and consumers benefit from these efficiencies.

When a firm has a new idea in a competitive market, the firm generally makes short-term abnormal profits. However, other firms quickly emulate or replicate the idea and enter the market to take advantage of abnormal profits. These new firms increase supply and prices fall in the long run to the price at which firms make normal profits for the risks undertaken in this market.

Pure Monopoly

In the case of pure monopoly, the industry is the firm! In actuality, there have been very few examples of pure monopoly. Even in cases where one firm basically controls all or virtually all of the market, such as was the case of DeBeers for years in the wholesale diamond market, there are always imperfect substitutes. If the price of diamonds becomes too high, consumers can substitute emeralds or opals, or other, perhaps less pricey, baubles. Basically, close substitutes virtually always erode monopoly power. For example, if prices for professional basketball tickets are set too high, consumers can substitute college basketball, or professional hockey, or even more time spent at the movies. Pro basketball is really just entertainment, is it not?

From a practical standpoint, a firm may have close to monopoly control of the market when the firm controls 25% or more of the market for the product. Also, some industries tend towards what is called natural monopoly because of high barriers and/or costs to entry and/or physical limitations or natural advantages to larger scales of operation. For example, the gas, electric, water, telecommunications, and rail industries all have these basic characteristics.

Monopolistic firms, unless regulated, as typically is the case with natural monopolies, may control price or output/supply, earn abnormally high profits in the long run, set prices above their marginal cost of production, and charge different prices to different consumers based upon each consumer’s perceived need and ability to pay.

Although monopolistic markets exploit consumers by both limiting their choices and extracting more in price than the firm’s marginal cost, called extracting monopoly rents, monopolistic markets sometimes provide certain advantages. The monopolistic rents earned by the firm may permit the firm to undertake greater research and development and accelerate innovation, at least to the extent that some products might not be developed because of great costs and risks unless producers had some guarantee of monopoly in production. Actually, every time a firm, such as a drug company, receives a patent on a new product, such as a new wonder drug, the government is granting the firm a monopoly for that product for a certain number of years. This rewards companies with monopoly marketing rights for the tremendous expense and risk associated with spending hundreds of millions of dollars in research and development on the gamble they will ultimately achieve the desired technological breakthrough. Through this temporary monopoly mechanism, consumers enjoy many goods and services that might otherwise never have been developed.

The disadvantages associated with monopolies are several. In general, consumers pay higher prices than they would in the presence of pure competitive markets. Often, supply is intentionally limited to increase prices, thus limiting or pricing certain consumer choices out of the range of the budgets of many potential consumers. In addition, monopoly market power may breed complacency and lead to inefficient production and lack of control over costs, which is a dead-weight loss in economic efficiency shared in part by all consumers.

Monopsony

Monopsony is a state in which demand comes from one source. If there is only one customer for a certain good, that customer has a monopsony in the market for that good. The concept is analogous to monopoly, but as applied on the demand side of the market, not the supply side. For example, for some workers in an isolated company town that was created by and is dominated by one employer, that employer is a monopsonist for some kinds of employment. For some kinds of U.S. medical care, such as in the case of the government program Medicare, the federal government is a monopsonist.

A common theoretical implication is that the price of the good is pushed down near the cost of production. The price is not predicted to go to zero, because if it went below where the suppliers are willing to produce they would not produce at all.

The term *market power* is often used to describe the continuum from perfectly competitive markets with many buyers to a monopsony market with only one buyer and there is an extensive practice/industry/science of measuring the degree of market power, or control over price.

Oligopoly

An oligopoly market structure is an industry dominated by a small number of large sellers, although the industry may have a large number of smaller firms. Typically, there are high barriers to entry in the market (e.g., initial scale of investment required, specialized know-how, physical barriers), at least with respect to reaching a dominant status. It follows that these sellers are also dominant buyers in the industry – this is termed *oligopsony*.

Examples of oligopolistic market structures are supermarkets, the banking industry (e.g., Citibank, Bank of America, Chase Manhattan), brewers (e.g., Anheuser-Busch, Miller), fast-food outlets (e.g., McDonald’s, Burger King, KFC, Starbucks), soda pop (e.g., Coca-Cola, Pepsi), bookstores (e.g., Borders, Barnes & Noble), detergents (e.g., Unilever, Proctor & Gamble), entertainment (e.g., Time-Warner, Disney), chemicals and medicinal drugs (e.g., Glaxo Smith Kline, Dupont), oil (e.g., AMOCO, Mobil), electrical goods (e.g., Sony, GE), and broadcasting (e.g., ABC, NBC, CBS, TBS). Products in these markets are sometimes highly differentiated (medicinal drugs) or close to homogenous (oil and gasoline). The major firms tend to rely on non-price competition (e.g., better service, easier access, brand name recognition, etc.). Smaller firms within these industries tend to differentiate their product, or sell in niches, but tend to be price-takers.

Oligopolies are characterized by periods of fierce competition interspersed within generally longer periods of cooperative pricing or outright collusion. For example, occasionally consumers will see gasoline price wars between competing oil companies, at least in local markets. But generally, the price for a gallon of gasoline for any major company tends to remain within pennies of the other major companies’ prices.

*Signaling.* Oligopolies have the potential for collusion among the major players in setting prices and controlling output. Although active collusion generally is illegal under anti-trust laws, oligopolies can achieve it in indirect ways through signaling. Signaling is the tactic of legally informing competitors what actions they are planning to initiate or will take in response to another competitor’s actions. Because direct contact or collusion usually is illegal under the antitrust laws, companies use signals to communicate with competitors.

The objectives of signaling are, principally, to avoid potentially costly price wars and to bluff competitors into responses to which a company can capitalize. Companies send signals in essentially 6 ways:

1.*Price movements. Companies use* price movements to signal intentions and penalize unacceptable behavior. For example, one gasoline company, say ARCO, lowers its wholesale price per gallon in a given region a cent or two hoping to attract customers from its competitors. A competitor, say AMOCO, quickly drops its price by five or more additional cents below ARCO’s new price. Basically, AMOCO is saying to ARCO, if you want to play this game it could get nasty. If ARCO immediately raises its prices they are signaling, in effect, that they will call a truce. If they do not raise their price, they are signaling that they intend to do battle.

2.*Prior announcements***.** Companies useprior announcements to threaten, to test competitors’ resolve, and to avoid surprises. For example, Coor’s Beer in the early ’80s announced that it was exploring the possibility of expanding its market from just the west-central United States to the entire U.S. market. They were hoping to test the response of the other national brewers to their announcement to see what counter-measures, if any, they could expect from these competitors.

3. *Media discussions***.** Companies use media discussions to communicate a company’s rationale for actions and to convey the company’s thoughts to the competition. This is a very typical signaling device, especially in the banking industry. When, say, CitiBank, decides that it thinks it should raise the prime rate it charges its best and most financially sound customers by half a percent, CitiBank’s chief economist will almost certainly appear on one of the Sunday morning national news talk shows discussing the economy and why Citibank thinks the prime rate will have to rise a half a percent. Inevitably, the chief economists for BankAmerica, Chase Manhattan, and other large banks will appear soon thereafter on similar shows voicing their opinions on the matter. If they agree, each bank feels safe to raise their prime rate without risking that they will lose customers to their competitors. However, if one or more of the economists do not follow the party line, they are indicating that their bank is not willing to play along. In this case, CitiBank has determined what the competition plans to do without illegally colluding to set the price of money (the prime rate).

4. *Counterattack. Companies use t*his tactic to attack a competitor’s principal market with a price cut or promotion in retaliation for its entry or encroachment in their principal markets. Say U.S. Airways starts a low cost-promotion on flights from Detroit to San Francisco, one of Northwest’s principal routes. Northwest might retaliate by offering low-cost flights from Philadelphia to Orlando, one of U.S. Airways principal routes.

5. *Announce results***.** Companies use this method to communicate clearly to the competition the results of an action to avoid costly misunderstandings. For example, a company could announce that a price cut is for a limited time in order to avoid their competitors viewing the price cut as a signal of a longer-term intention to keep prices low.

6. *Litigation***.** Companies usethis strategy to tie up a competitor in court. There are innumerable examples of when companies have used this tactic both for more legitimate and less legitimate purposes. When Kodak entered the instant photography business, Polaroid sued Kodak for patent infringement. Kodak said that it would fight with all the resources at its disposal, hoping, presumably, that Polaroid might find it better to compromise than fight. However, fight Polaroid did, and prevailed, with Kodak ultimately abandoning the instant photography business and paying Polaroid a $1 billion settlement. In this case, Kodak was hoping its larger size, resources, and the cost of potential litigation would intimidate Polaroid into settling and permitting Kodak to remain in the business. However, Polaroid called Kodak’s bluff and won. In many other cases, this litigation strategy intimidates companies into capitulation or compromise.

*Concentration***.** The more just a few companies dominate an industry, the more control and sway these major firms within the industry will have on the price and quantity of output. Economists measure the degree of oligopoly by what is called the *concentration ratio*, the proportion of market share for which the top X number of firms within the industry account. For example, a five firm concentration ratio of 80% means that the top five firms account for 80% of the market.

Monopolistic Competition

Monopolistic competition is a market structure with many buyers and sellers and where entry and exit is relatively free, but where products are highly differentiated. Each firm may have a tiny monopoly because of the differentiation of their product and, therefore, has some control over price and output for its particular version of the product. Examples include restaurants, fast-food outlets, professions, copy stores, perfumes, sneakers, clothing stores or lines, and cereals. The existence of imperfect substitutes in the market limits price-fixing flexibility. For example, if the price of Chanel No. 5 is too high, customers may switch to Canoe or Beautiful; if McDonald’s Big Mac is too expensive, customers may switch instead to Burger King’s Whoppers or to KFC’s fried chicken.

Monopolistic competition is perhaps the most prevalent market structure in the U.S. In fact, much of the curriculum, especially the marketing curriculum, in the MBA programs throughout the country focus on how to make products more high involvement by differentiating a firm’s products from the competition to enhance the firm’s control of price and output and, thus, potential profits. For example, 40+ years ago, most people perceived jeans almost exclusively as work clothes, so they were priced essentially as a commodity item. Although Lee and Levi jeans had slight differences, they were priced nearly identically and cost substantially less than dress slacks. However, once Jordache entered the market with its distinctive pocket stitching and with the pitch that jeans were not just for work anymore (i.e., had become an item of fashion apparel); the market for jeans with all sorts of distinctive fashion uses grew exponentially. Today, one is likely to pay as much or more for a pair of jeans as one pays for a pair of dress slacks.

MACROECONOMICS

Components of macroeconomic theory include:

* fiscal versus monetary policy;
* Keynesian theory;
* monetary theory;
* rational expectations;
* supply-side economics;
* business cycles;
* inflation, deflation, and disinflation;
* interest rates and the yield curve.

Macroeconomics is the study of the entire economy in terms of the total amount of goods and services produced, total income earned, the level of employment of productive resources, and the general behavior of prices. Macroeconomics is economic theory from the perspective of the large (government policies, money supply, international trade, taxation, econometric modeling) and moving down to the effects on the small (individuals, firms). Economists use macroeconomics to analyze how best to influence broad policy goals such as economic growth, price stability, full employment, and the attainment of a sustainable balance of payments.

Until the Great Depression of the 1930s, most economic analysis concentrated on individual firms and industries. However, after the Great Depression, together with the development of the concept of national income and product statistics, the field of macroeconomics began to expand. Particularly influential were the ideas of John Maynard Keynes, who used the concept of aggregate demand to explain fluctuations in output and unemployment. Keynesian economics is based on his ideas.

One of the challenges for economists has been the struggle to reconcile macroeconomic and microeconomic models. Starting in the 1950s, macroeconomists developed micro-based models of macroeconomic behavior, such as the consumption function. The first global macroeconomic model, Wharton Econometric Forecasting Associates LINK project, was initiated by Lawrence Klein and was mentioned in his citation for the Bank of Sweden Prize in Economic Sciences in Memory of Alfred Nobel in 1980.

Theorists such as Robert Lucas Jr. suggested (in the 1970s) that at least some traditional Keynesian macroeconomic models were questionable, as they were not derived from assumptions about individual behavior. However, New Keynesian macroeconomics generally has presented microeconomic models to shore up their macroeconomic theorizing, while the Lucas critique has fallen from favor.

The following paragraphs discuss the main schools of macroeconomic thought as viewed by economists today:as discussed in.

*Keynesian economics* focuses on aggregate demand to explain levels of unemployment and the business cycle. That is, government should conduct their fiscal and monetary policies so that business cycle fluctuations are reduced (the government spends more or less depending on the situation). Early Keynesian macroeconomics was activist, calling for regular use of policy to stabilize the capitalist economy, while some Keynesians called for the use of incomes policies.

*Monetarism*, led originally by Milton Friedman and the Chicago School, holds that inflation is always and everywhere a monetary phenomenon. It rejects fiscal policy because it leads to crowding out of the private sector consumption and investment. Further, it does not wish to combat inflation or deflation by means of active demand management as in Keynesian economics, but by means of monetary policy rules, such as keeping the rate of growth of the money supply constant over time and maintaining the level of interest rates.

*New classical economics* emphasizes the idea of *rational expectations*. The original theoretical impetus for this resurgence of classical economics was the charge that Keynesian economics lacked microeconomic foundations (i.e., its assertions were not founded in basic economic theory). This school emerged during the 1970s lead by Robert Barrow and others. This school assumes that at any one time, there is only one market clearing equilibrium and that the economy automatically gravitates to that equilibrium. Fluctuations occurred due to changes in potential output (i.e., changes in aggregate supply). It is the position of the new classicists that the efforts of the government to manage the economy through activist policies are one of the principle *destabilizing* factors in the economy.

*New Keynesian economics* arose partly in response to new classical economics. It strives to provide microeconomic foundations to Keynesian economics by showing how imperfect markets can justify demand management.

Supply-side economics emphasizes incentives to production and supply. The key idea is that monetary policy should focus purely on the price of money as determined by the supply of money and the demand for money. It advocates a monetary policy that directly targets the value of money. Typically, economists measure the value of money by reference to gold or some other cost-of-living reference. The focus of fiscal policy is to raise revenue for worthy government investments, with a clear recognition of the impact that taxation has on domestic trade.

Fiscal Versus Monetary Policy

Fiscal policy deals with government tax and spending as it affects the economy. The basic philosophy is that government intervention can improve the performance of the economy. By spending more and taxing less when the economy is down or in recession, the government can spur economic activity, raising incomes and production, and reducing unemployment. Conversely, by spending less and taxing more when the economy is overheating, government action can dampen inflationary pressures. This school of thought, called the Keynesian school, was fathered by John Maynard Keynes, the author of *The General Theory of Employment, Interest, and Money* (1936) and has been the predominant economic theory applied by Democratic administrations since Franklin Roosevelt, although Republican administrations have practiced these policies as well.

Monetary policy deals with the effect of the money supply on economic activity. The philosophy of this school of thought is that the economy is more responsive to changes in the money supply and interest rates through the independent actions of businesses and individuals, than to government tax-and-spend policies. The concept is that increases in the money supply through the actions of the Federal Reserve can lower interest rates and increase liquidity in economic downturns, thus spurring businesses to make additional investments and spurring consumers to increase consumption spending to drive economic activity back up to a desired growth rate. Conversely, reductions in the money supply can raise interest rates and reduce liquidity, which raises the cost of investment and consumption to help quell an overheating economy. Nobel Prize-winning economist Milton Friedman was the leading proponent of this theory, notably identified with the Chicago School of Business and Economics.

The Changing Debate

The clear failings of the application of either theory to successfully manage the economy, with the period of stagflation (high inflation and recession) in the 1970s being just one the most obvious examples, has changed the debate from which theory is the best tool to manage the economy to whether or not the government can effectively manage the economy at all. Many of the economists associated with the Keynesian school of thought have tended to continue to support an activist government role, while those of the Monetarist-Chicago school have seen government intervention as more a source of instability and economic inefficiency than the contrary. The Keynesians are for micro-management by the government for both political and social ends. The Monetarist-Chicago school believes that the government’s role is limited to ensuring stability and eliminating the barriers to free and unfettered enterprise.

The debate is not simply about which theories when applied are the most effective, but about the role of government itself, in other words, about social policy. The discipline now called economics has been called, and still is called, the study of political economy.

 Rational Expectations Theory

In the 1970s and 1980s economists proposed a new rational expectations or anticipations theory. , Theory, research and empirical evidence questioned the efficacy of any government attempts to manage economic affairs. The economists based the theory on the simple notion that in order for most government fiscal or monetary policies to work, people must either be ignorant of the policies or not understand the implications of the policies on economic activity. For instance, in order for an increase in the money supply to increase economic activity, it must be presumed that people behave as though this will not increase prices, or that they will adjust their anticipations only slowly. Of course, once people come to realize that increases in the money supply, all else being equal, will result in higher prices, they will rationally anticipate the increases and adjust their behavior immediately. This will mute the effect of the policy. The economists make similar arguments for the inefficacy of fiscal policies. The only lasting effect of employing these traditional fiscal and monetary activist policies, the economists argue, is the inefficiencies associated with people’s attempts to outmaneuver the government policies.

A further conclusion of the rational expectations theory is that government policies themselves, if not entirely anticipated, in fact create shocks to the economy that create or exacerbate the instability the government, ostensibly, is trying to eliminate. In other words, government activism tends to be (at least part of) the problem, not the solution.

Gross National Product, Inflation, and the Keynesian View

Terms

* Gross National Product (GNP**)** is the total market value of all final goods and services produced by the economy in a year. The values of intermediate goods are not counted directly, but rather, to avoid double counting, are only counted in the value of the final product in which they are a part.
* Gross Domestic Product (GDP) is only that part of GNP that is produced within the country’s borders. The adjustment is relatively small and so GDP is almost the same as GNP.
* NominalGNP or GDP is the GNP or GDP expressed in current dollars.
* RealGNP or GDP is the GNP or GDP adjusted for inflation or expressed in constant-value dollars.
* The GNP or GDPdeflator is the factor adjusting nominal GNP or GDP to real (inflation-adjusted) GNP or GDP in terms of some base year.
* The Consumer Price Index (CPI) measures the price changes of a specifically designed, representative basket of consumer goods and services that most people buy. There are actually several variations of this index for large urban areas, small urban areas, rural areas, and even geographical regions of the country.
* The Producer Price Index (PPI) measures price changes of a collection of raw materials used most often by producers.
* Net National Product (NNP) is the GNP adjusted for economic depreciation (i.e., adjusted for the amount of capital, such as machinery, factories, buildings, and equipment, that is used up in the process of production each year).

Keynesian formula for GNP.

|  |  |
| --- | --- |
| GNP = | C + I + G + X |
| where | C is personal consumption |
|  | I is private investment |
|  | G is government purchases |
|  | X is net exports over imports |

According to this equation, GNP will increase by increasing any of the four components of GNP.

Fiscal Multiplier

Any increase in government spending has a multiplier effect on GNP. The marginal propensity to consume (MPC) is the ratio of the amount an average person will spend to the total amount received when receiving additional income. The greater is the MPC, the greater is the potential effect of an increase in income on the GNP. The formula is usually stated as follows:

Government spending multiplier = 1 ÷ (1 - MPC).

*Example.* If, in the economy as a whole, people tend to spend 90% of any additional income they receive and save only 10%, the MPC is 90%. Therefore, if the government spends an additional $100 million on a public-works project, the result would be another $1 billion in the economy: $100 million x (1 ÷ 0.10) = $100 million x 10 = $1 billion.

One of the critical fallacies of this notion is that it ignores the fact that in order to spend $100 million, the government has to get the money from some place. Basically, the government has only three choices: raise taxes, borrow, or print money.

1. *Raise taxes***.** If the government raises taxes by $100 million, they will be taking $100 million out of the economy at the same time as they are putting $100 million into the economy. Sounds like it is a wash, right? No; not according to the Keynesian theory. If the government puts $100 million in, total spending increases through the multiplier by $1 billion. Therefore, the net effect is an increase in total spending of $900 million, theoretically.

However, taking $100 million out of the economy in taxes also has a negative spending multiplier effect, does it not? So it really is a wash, right?

No, once again. According to Keynesian theory, the net effect leaves us with a net increase in spending of the original $100 million spent by the government. The argument is that individuals would have actually spent only $90 million of the $100 million the government taxed from individuals, the rest would have been saved. Therefore, taxing $100 million really only takes $90 million of spending out of the economy. Therefore, when government both taxes and spends $100 million, the theory asserts, there is a net first-round spending increase of $10 million. When the multiplier is applied to this net $10 million increase in spending, total spending increases by $100 million, the same as the initial amount of government spending.

This is called the *balanced budget multiplier*, but it does not wash. What happens to the amount that would otherwise have been saved? When individuals save money, it is not taken out of the economy. It ends up in some bank where the bank loans it so someone else can spend it on consumer or investment goods. Therefore, it re-enters the economy as additional spending. So, there is actually no additional spending.

How can $100 million spent by the government have a greater effect than $100 million spent by the people themselves? The only way that money spent by the government can have a greater economic effect than the same amount spent by the people themselves is if it is spent or invested by the government more effectively and efficiently than it would be by the people.

2. *Borrow*. If the government borrows the money, they are also, once again, taking purchasing power out of the economy. Economists have engaged inconsiderable debate and research into the question of *crowding out*, the issue of whether government borrowing reduces or crowds out borrowing and investment that the private sector would otherwise have made. The arguments that government borrowing does not crowd out private sector borrowing are weak.

Money is fungible. What makes borrowing by the government any different than borrowing by anyone else? If government borrowing increases the demand for loan funds above what it would be without the government borrowing, interest rates, the price of debt, will rise, choking off private borrowing and investment by those who would have found borrowing attractive at lower rates but not at the higher rates.

3. *Print money*. If the government does not want to tax people and cannot or will not borrow the money, it can simply print it! It does not actually print money, not usually, that is. Rather, it borrows the money through the Federal Reserve, which simply creates bookkeeping entries and increases the banking reserves. This is called *monetizing the debt*. It is just such monetization that created the double-digit inflation of the 1970s. If the money supply increases faster than the growth in the economy, inflation is inevitable. More dollars chase fewer goods.

IS/LM Curve of the Investment/Spending and Money Markets

The Investment-Saving/Liquidity-Money curve (IS/LM) shows the relationship or tradeoff between investment and saving versus liquidity. High interest rates choke off both investment and consumer spending, especially of consumer durables, which are frequently financed. The downward sloping curve describing this relationship is called the Investment and Spending curve (IS).

In Keynesian theory, higher interest rates increase the preference for money (short-term liquid money-market instruments) or increase *liquidity preference*. In contrast, when interest rates are low, people shift to stocks or long-term, less-liquid bonds with higher yields. This relationship is described by an upward-sloping liquidity and money curve (LM).

At the point where the IS and LM curves cross is the equilibrium interest rate and GNP.

**Figure 19.4**

**IS / LM Curve**

**Goods and Money Market Equilibrium**

**I**

**N**

**T**

**E**

**R**

**E**

**S**

**T**

**R**

**A**

**T**

**E**

**I**

**Y**

**LM**

**IS**

**E**

**Total Income, Output (Y)**

The IS/LM curves will shift with changes in fiscal and monetary policy. For example, if government spending increases, total spending will rise, according to the free-lunch notions of Keynesianism, and the entire IS curve will shift upward, resulting in higher equilibrium interest rates and higher GNP. If the government also increases money supply in the right amount corresponding to the increase in spending, the LM will shift outward. According to Keynesian theory, the net result should be an increase in GNP while interest rates remain level.

**Figure 19.5**

**IS / LM Curve**

**Shift in IS / LM Curves**

**I**

**N**

**T**

**E**

**R**

**E**

**S**

**T**

**R**

**A**

**T**

**E**

**I**

**Y2**

**LM 1**

**IS1**

**E1**

**Total Income, Output (Y)**

**IS2**

**LM 2**

**E2**

**Y1**

Economic Growth and the Monetarist View

Money includes currency and money equivalents, such as checking accounts and money-market funds. M1 is defined as cash, checking account balances, and nonbank traveler’s checks. M2 is defined as M1 plus savings accounts and money-market accounts.

Quantity-theory-of-money formula.

|  |  |  |
| --- | --- | --- |
| Money (M) x Velocity (V) | =  | Nominal GNP |
| Money (M) x Velocity (V)  | =  | Price Level (P) x Real GNP (Q) |
| M x V  | =  | P x Q |

where Velocity is defined as the rate at which money turns over in the economy.

The quantity theory asserts that the velocity is relatively constant, therefore, increases in the supply of money will increase nominal, but not necessarily real, GNP.

 Monetary Policy Tools: The Federal Reserve

1. *Change the discount rate.* This is the rate at which banks can borrow from the Federal Reserve to increase their lending to customers. By increasing the discount rate, the Federal Reserve, or the Fed, as it is called, discourages bank borrowing and, hence, reduces overall demand in the economy.

2. *Buy or sell government securities*. Through what are called open-market transactions, the Fed buys or sells Treasury bonds to the public. Selling the bonds to the public takes money out of the economy because buyers must use their cash and savings to buy the bonds which reduces the amount of liquidity in the economy, Conversely, when the government buys bonds, it puts more money into the economy, increasing liquidity.

3. *Change the reserve requirements of financial institutions.* By changing the reserve requirements, the Fed either puts more liquidity into or takes more liquidity out of the banking system. Banks must keep a certain proportion of their deposits secured by reserves. By adding to or taking away from these reserves, the Fed either expands or contracts the available funds for loans and money supply.

Supply-Side Economics

During recent decades debates have raged in our nation's capital over how best to get the U.S. economy moving. From these debates, two opposing camps coalesced. The first, and larger, camp emphasized more government spending, accompanied by tax rebates and temporary tax cuts geared primarily at low-income earners. These were the Keynesians, and their emphasis was on consumption. The second camp emphasized the need for permanent tax relief that boosts incentives for working, investing, and risk taking, and helps the economy both over the short run and the long haul. These were the supply-siders, and their emphasis was on production, subject to the free market.

What people now call supply-side economics is really a re-emergence of classical economic theory in response to the failures of both the Keynesian and Monetarist policies since the decade of the 1970s. Its basic premise is that the most effective and efficient form of government action is to provide incentives to market participants and let the competitive market work without too much interruption and interference from government. The fundamental principle involved is that the actions of millions of market participants, where all individuals are pursuing their own enlightened self-interest, allocate resources more efficiently than government-mandated spending policies ever could.

In summary, supply-side economics is built on the following tenets:

* *Incentives matter*. Individuals naturally respond to incentives. For example, the relative prices, or costs, of consumption versus investment, or risk avoidance versus risk taking, influence the behavior of individuals, families, and businesses.
* *Markets work*. The free, unfettered market provides clear incentives, through price and profit signals, that assure that resources are allocated to their most efficient and beneficial uses. So while supply-side economics emphasizes production (see next point), it is production within the context of the free market. In order to be of value, production must meet or create a demand. After all, the end point of the entire economic process is consumption.
* *Supply comes before demand in the economic process*. There are two aspects to the idea that supply takes precedence over demand in the economic hierarchy. First, in the marketplace, one must supply a marketable good or service before one can legitimately demand or consume. That is, one must supply something in order to be able to exchange it to meet one's own needs and desires. Or more plainly, you can't get something for nothing.
* *Supply creates demand*. Indeed, no general demand existed for televisions, home computers, or most other products or services, until someone invented and improved upon such products and services.
* *The engines of economic growth (working, saving, investing, risk taking, innovating, inventing, and creating) are all supply-side endeavors*. Economic growth can only occur through a boost in resources used for production purposes and/or greater efficiencies, innovations, and inventions.
* *The entrepreneur, not the government, drives the economy*. Supply-side economics recognizes the critical economic role played by the entrepreneur. As the source of new products, services, inventions, and innovations, the entrepreneur serves as the ultimate source of economic growth.
* *A healthy economy depends upon sound money*. Price instability and inflation are monetary phenomena that increase the risks and costs of saving, investing, and risk taking. Sound money (knowing that a unit of currency will maintain its value months, years, and decades from now) is the necessary foundation upon which an economy can prosper.

Supply-Side Policies

Supply-side policy is driven by two policy levers. The first is the fiscal lever – tax, regulatory, and spending policies geared toward establishing a pro-growth economic environment. The second is the monetary lever – monetary policy geared to establish price stability upon which an economy can function and flourish. Under the supply-side economics model, and in contrast with Keynesian notions and the Phillips curve theory, economic growth and price stability are not at odds with one another, but are actually complimentary. The most accurate definition of inflation remains “too much money chasing too few goods.” Therefore, economic growth, or the production of more goods and services, is anti-inflationary.

As for the fiscal policy lever, the following policy prescriptions are deeply rooted in supply-side economic thinking:

* *Low marginal tax rates*. Marginal tax rates (i.e., the tax rate on the next dollar of income earned) influence economic decisions. For example, the marginal tax rate helps determine the relative price of work vs. leisure, investment vs. consumption, risk taking vs. risk avoidance, and so on. Therefore, supply-side economics places significant importance on reducing marginal income tax rates in order to boost incentives for working, investing, and risk taking. In addition, the supply-side belief that supply comes before demand in the economic order leads to a preference for taxing consumption rather than production. After all, consumption is the eventual end point of all economic activity and seems the most logical point in the economic process to reflect the total cost of government. Of course, as is the case with all taxes, taxing consumption too heavily would cripple an economy.
* *A light regulatory burden*. Under supply-side economics, regulation is simply another form of taxation. Regulations raise the costs of investment and entrepreneurship, and thereby restrain economic growth and job creation.
* *Small, limited government*. Under supply-side economics, the primary emphasis is on the total size of government. That is, what are the total resources being diverted from more productive private-sector ventures to less productive government endeavors, whether through borrowing or taxing. Basically, government operates without normal economic incentives. Without the disciplines of prices, profits, losses, and private ownership, government is inherently wasteful, and, therefore, should be quite limited in its duties. On the secondary level, the relative mix of how government is then financed gains supply-side attention. For example, one must consider the relative economic costs of borrowing versus taxing. Of course, in the long run, eventually taxes and fees (or inflation) pay for virtually all government expenditures . However, the mix, timing, levels, and types of taxation help determine the size and growth of the economy.
* *Free trade.* From a supply-side point of view, eliminating international barriers to trade lowers costs, expands and opens markets and opportunities, enhances incentives for production, boosts competition, improves quality, reduces consumer costs, and expands consumer choices.

As for the monetary policy lever, Supply-side economics holds that the only objective of monetary policy should be to stabilize prices. A sound currency and stable prices create an environment where investment and the economy can flourish. Anchoring the dollar to gold or some better composite measure of inflation– as was the case, to varying degrees, from the end of the 1870s to the late 1960s – still serves as the surest path to price stability.

THE BUSINESS CYCLE

Business activity always expands and then contracts. Periods of surging production, employment, and profits are followed by periods of shrinking outputs and profits and increases in unemployment. Then the entire cycle repeats itself again.

The cycle is certain and inevitable. What is uncertain is exactly why business and economic activity fluctuates as it does. The more important question from a practical perspective is how to determine *when* current trends in business and economic activity will change.

No one yet has been able to accurately predict the length and course of each business cycle. This is, in part, because the economy is not like a scientific experiment where scientists can control conditions to isolate the underlying laws that govern the movements in the economy like the balls on a pool table. The basic economic conditions for each historical experiment or observation of changes in the economy are always somewhat different from the previous cycle.

This does not mean that certain laws or principles do not influence the business cycle, but rather that our observations of these laws are fuzzy. We cannot be sure that we have properly accounted for all the factors and circumstances that conditioned the subsequent events. Therefore, we can only glean general tendencies of which economic or business conditions might or generally should follow another set of economic or business conditions.

Yet, several things are certain: forces within the economic (and political) system generate the business cycle, not any preternatural outside forces. Forces and conditions within the economic system drive the alternating periods of expansion and contraction. Consequently, certain critical features of the cycle endure.

1. *The forces of supply and demand condition every business cycle*. To increase income, one must produce more. But the level of demand must justify this output. With sufficient demand, the level of production will be sustained and will grow, and income will increase. If demand is insufficient, the reverse will occur. During the expansion phase of the cycle, demand outpaces supply, which permits the growth of production and income; during the contraction phase, supply outpaces demand and the growth of production and income slows or falls.

Exactly why these disparities in the forces of supply and demand exist and why they change is not entirely clear. However, certain economic statistics and indicators tend to reflect the effects of changes in these forces even before or just as these forces begin to affect the economy as a whole.

2. *Credit drives consumption and business investment*. Consumers may increase consumption and businesses may increase investment in productive capacity by borrowing money if their current income is insufficient to sustain their desired expenditures. Spending borrowed funds permits demand to take on a life of its own and bid up a constantly and rapidly growing level of production. This supports the expansionary phase of the business cycle.

This expansion of credit and production is only sustainable as long as the borrowers and the lenders continue to have confidence in the trend of the expansion. But as the expansion continues, the principle of scarcity applies and the availability of credit tightens, interest rates increase, and the cost of borrowing to finance either consumption or investment increases. Simultaneously, to continue the expansion, producers must expand their production in less and less lucrative investment opportunities as the most lucrative investment (production) opportunities become fully exploited. Inevitably, the potential returns just do not seem to warrant the increased cost, demand falls, and with it, the level of production and income. The contraction has begun.

Once again, it is difficult to determine just when the turnaround will occur, but various credit-market and interest-rate statistics and indices can send out warning signals that the inevitable downturn cannot be far behind.

3. *Every expansion inevitably leads to contraction*. As described above, sooner or later businesses realize that the expected level of sales will not support additional plant and equipment, and inventories begin to grow above desired levels. Consumers realize that they will have difficulty paying for that new home or car. Businesses and consumers begin to curtail their borrowing and expenditures. Because production and income have spurted ahead to meet the growth in demand, they fall when the inevitable contraction in demand takes place.

Various business and consumer statistics provide evidence of reduced demand and excess supply.

4. *During contractions, production and income recede to a level that does not rely on a continuous growth in credit*. Predicting the end of a contraction is as difficult, if not more so, than predicting the downturn of an expansion.

5. *Every contraction sows the seeds of the subsequent recovery*. Eventually, as consumers and businesses repay their debts, the lower debt burdens and reduced interest rates encourage consumer and business borrowing and demand once again. The economy begins to expand once more.

Despite downturns, some of the gains of the prior expansions have historically survived. To some extent, contractions can be attributed to the continued, and even expanded, investment in productive capacity in markets and technologies that are being replaced by new markets and technologies. Like the cycle of life itself, the old gives way to the new. The businesses that, through design or simply through the good fortune of being in the right place at the right time, invest in the emerging markets and employ efficient technologies survive and prosper. Contractions continue until the misspent investment of the prior expansion is absorbed and reallocated to the industries and markets where businesses can use it more productively used. As investment and human (labor) capital is more efficiently allocated, productivity increases, spurring a recovery and expansion.

Composite Economic Indicators

1. *Where do they come from?* In December 1995, the Conference Board became the official source for the widely publicized composite indexes of leading, lagging, and coincident indicators. For almost 30 years, these economic data series, often referred to as the leading index or the leading indicators, were compiled and published by the U.S. Department of Commerce. The Conference Board has also assumed responsibility for compiling a larger set of economic indicators that was also previously provided by the federal government in both a conventional publication, the *Survey of* *Current Business*, and in electronic format (both diskettes and on the Internet). The Board publishes this under the title *Business Cycle Indicators* (BCI).

2. *General overview*. Cyclical indicators are classified into three categories – *leading*, *coincident*, and *lagging* – based on the timing of their movements. In order to emphasize the cyclical patterns in the data and de-emphasize the volatility of individual indicators, the best of them are combined into composite indexes – specifically, into three separate indexes made up of leading, coincident, and lagging indicators. The composite leading, coincident, and lagging indexes are the key elements in an analytic system designed to signal peaks and troughs in the business cycle.

Because they are averages, they tend to smooth out a good part of the volatility of the individual series and thereby serve as handy summary measures of the business cycle. Coincident indicators, such as employment, production, personal income, and manufacturing and trade sales, are broad series that measure aggregate economic activity; thus, they define the business cycle. The peaks and troughs in the coincident index line up closely with the official business cycle peak and trough dates from the NBER. The largest deviation is three months at the 1960 peak. Eight of the last 13 turning points match exactly, and all turning points in the coincident index correspond to either the beginning or end of a recession.

Leading indicators, such as average weekly hours, new orders, consumer expectations, housing permits, stock prices, and the interest rate spread, are series that tend to shift direction in advance of the business cycle. For this reason, they get the lion’s share of the attention. The record of the leading index is more variable than the coincident index, and lead times at peaks tend to be longer than at troughs. The leading index has led cyclical downturns in the economy by eight to 20 months, and recoveries by one to ten months. Nevertheless, it is important to recognize that leading indicators are more meaningful when used within the framework of a system of cyclical indicators – including coincident and lagging indicators that define and describe business cycles.

The lagging indicators, in contrast to the leaders, tend to change direction after the coincident series. Therefore, the lagging series would seem to have little practical value on the surface – indeed, they are often dismissed as inconsequential. To do so, however, ignores vital information about the business cycle process, because these series help to warn us of structural imbalances that may be developing within the economy. These indicators represent costs of doing business, such as inventory-sales ratios, change in unit labor costs, average prime rate charged by banks, and commercial and industrial loans outstanding. Consumer and social costs are also represented by lagging indicators, such as the ratio of installment credit outstanding to personal income, the change in consumer prices for services, and average duration of unemployment. Thus, an accelerated rise in the lagging indicators, which often occurs late in an expansion, provides a warning that an imbalance in rising costs may be developing.

The lagging index plays its biggest role in relation with the coincident index. The ratio of the coincident to lagging index predicts turns in the economy with even more lead time than the leading index. Indeed, the ratio of the coincident to lagging index had rather long leads of between eight and 11 months of business cycle peaks from 1970 to 1990. However, this ratio has been less accurate, overall, than the leading index in predicting turns in the economy.

Moreover, the lagging indicators help confirm recent movements in the leading and coincident indicators, and thus enable us to distinguish turning points in these series from idiosyncratic movements.

With a few exceptions, the cyclical indicators included in the BCI database have been subjected to, and have survived, a half-dozen statistical and economic tests, as follows:

* Conformity – the series must conform well to the business cycle
* Consistent Timing – the series must exhibit a consistent timing pattern over time as a leading, coincident or lagging indicator
* Economic Significance – cyclical timing must be economically logical
* Statistical Adequacy – data must be collected and processed in a statistically reliable way
* Smoothness – month-to-month movements must not be too erratic
* Currency – the series must be published on a reasonably prompt schedule

When these standards are strictly applied, relatively few individual time series pass muster. No quarterly series qualifies for lack of currency, and many monthly series lack smoothness. Indeed, there is no single time series that fully qualifies as an ideal cyclical indicator.

3. *Diffusion indexes*. Diffusion indexes provide another source of useful, but often neglected, information about the business cycle. They tell us how widespread a particular business cycle movement (expansion or contraction) has become, and measure the breadth of that movement.

Diffusion indexes measure the number of components that are increasing in any given month. For example, because the leading index has ten components, a diffusion index value of 70 would indicate that seven of the ten components were rising. A diffusion index of zero would indicate that all ten fell. The BCI database includes diffusion indexes over two different time spans, one month and six months, for the components of the leading, coincident, and lagging indexes, and for employment in 356 industries. The one-month span indexes tend to be erratic, while signals from six-month diffusion indexes are much more reliable.

Diffusion indexes are not redundant even though they are based on the same set of data as the composite indexes. On occasion, they move in different directions. A composite index differentiates between small and large overall movements in the component series, while a diffusion index measures the prevalence of those general movements. The difference often is very useful when attempting to either confirm or predict cyclical turning points.

4. *Predictive accuracy*. Unfortunately, economists have never agreed on a single economic indicator to predict the future of the business cycle. Some indicators are better than others, but none is consistently accurate; all give false signals on occasion. The index of leading economic indicators was devised to combine a number of statistical series drawn from a broad spectrum of economic activity, each of which tends to move up or down ahead of the general trend of the business cycle.

A practical outcome of business cycle research is a roadmap of the economy over the next six to twelve months. Clearly, knowing whether or not that map contains the pitfalls of a recession is important. But what also is important is to know the direction the economy will take in coming months. That is why interpreting cyclical downturns, whether or not they result in a recession, is of significance. This discussion focuses on the risk assessment of an approaching recession, but one can make similar arguments to predict recoveries at the end of recessions as well.

Looking at data month by month, it is clear that the leading index has many brief declines that have nothing to do with cyclical downturns in the economy. Indeed, if economists took every one- or two-month decline in the index seriously, they would be forecasting a recession several times each year. How can one determine, then, when weakness in the leading index represents a true signal of recession ahead rather than just an inconsequential blip in the data?

One useful approach is to examine the *Three Ds: the duration, depth, and diffusion* of the leading indicators. The longer the weakness continues, the deeper it gets; and the more widespread it becomes, the more likely a recession will occur.

It is not sufficient to draw conclusions based on a single rule. However, in practice, simple rules based on one or more of the Three Ds can provide guidelines to interpret and summarize the complex set of interactions and linkages among the cyclical indicators. Thus, using duration, depth, and diffusion, in conjunction or individually, provides the business cycle economist with a lexicon to interpret the vast amount of information gathered from many aspects of the economy, and to assess the likelihood of a recession or recovery.

The leading index does not increase or decrease in long continuous movements. Expansions are interspersed with occasional months of decline, and recessions include months of increase. Regardless, interpreting declines in the leading index using duration facilitates the emergence of short-term patterns or trends. The depth and diffusion of those declines help discern how likely a short-term fluctuation is to be a recession warning. This motivates the use of the Three Ds in conjunction with one another.

The duration of a decline is perhaps the most obvious indication of imbalances in the economy, which might eventually enter a recession as a result. However, for reliable interpretation of these declines, most economists also require a significant downward movement in the index, as well as declines in the majority of the component series. These are the second and third aspects of the Three Ds; depth and diffusion, respectively. Simply put, the greater the decline (depth), the more likely it is that a serious economic downturn will occur, and the more likely that the decline is not a random fluctuation. By calculating the percent change of the decline over a given span of months, the seriousness of the decline can be assessed. Also, a decline caused by a dramatic fall in just one of the ten components of the leading index may not be serious, but the same percentage decrease caused by seven or eight components falling might be.

In order to demonstrate that using only one of these dimensions is not by itself necessarily successful, consider the three-month rule mentioned above, which relies only on the duration of declines. Whenever the leading index falls for three or more consecutive months, a recession warning, or signal, is said to occur. During the four decades from January 1959 to December 1999, excluding times the economy was already in a recession, this rule produced twelve such signals. Four of those warnings, in 1960, 1969, 1979, and 1981, were immediately followed by a recession, and two, in 1973 and 1990, began simultaneously with the business cycle peak. Although the former warn of a coming recession, it is not clear how to interpret the latter, which start with the beginning of a recession. Therefore, at best, these are signals that arrive late. In addition, there are three three-month declines that occur within twelve months of the beginning of a recession, in 1959, 1969, and 1973, that could reasonably be classified as legitimate signals. The remaining four, in 1966, 1978, 1987, and 1995, occur during periods of expansion. All of those periods, except the late 1970’s, are business cycle expansions of at least eight years. Therefore, consecutive declines in the leading index during these periods are considered to give false signals because they are not directly associated with a recession.

The problem of false signals based on this rule does not diminish if it is modified by increasing the duration required to signal a recession. Consider instances where the leading index fell for at least four consecutive months. There are seven such occurrences.

Several times, the leading index fell for three consecutive months, but rose in the fourth month. Such situations, of course, are discarded when looking for declines of four consecutive months in the leading index. Consecutive declines of four or more months are associated with only three of the last six recessions, 1969, 1973, and 1990. Of these three declines, only the first immediately precedes a recession; and the others begin simultaneously with the recession. In addition, there are two occurrences within twelve months before the beginning of a recession, 1959 and 1973, and two that are not associated with any recessions at all, 1966 and 1995. Although the former could be considered legitimate but mixed recession signals, the latter are clearly false signals. Thus, increasing the duration that is required to interpret back to back declines in the leading index as a recession signal – from three months to four months – appears to eliminate two false signals; but the remaining recession warnings become somewhat more confused. If the available data are interpreted more thoroughly, guided by the composite indexes, than is possible by this simple rule, the risks of the economy entering a recession at those times (i.e., in 1966, 1978, 1987, and 1995) can be evaluated more realistically.

A more comprehensive rule – also based on historical analysis – shows that downward movements in the leading index of three to four percent over six months, coupled with declines in more than half of the components, can be reasonable criteria for a recession warning. The average lead using this dual-criteria rule is five-and-a-half months, compared with an average lead of about eight months for absolute peaks (defined as the high point in a particular time span) in the level of the index.

Besides picking up each recession, this dual-criteria rule does yield one clear false signal, 1966, and two borderline cases of false signals, 1989 and 1995. These predictions of recessions that did not materialize are not necessarily flaws. Sometimes false signals are quite insightful because the leading index is sensitive enough to point to imbalances in the economy that could result in a recession. In 1966, 1984, and 1995, for instance, the leading index turned down significantly, even though a recession did not follow. Because economic growth weakened slightly thereafter, many economists believe that the index warned appropriately that the risk of a recession had increased. It is as though this combined rule with the leading index spotted conditions that often led to a tropical storm, but which turned out to be nothing more than a rain shower.

In the 1981-1982 and 1990-1991 recessions, both criteria were met as the economic downturn began, although the leading index had turned down before the recessions started. These recessions developed quickly, surprising almost all of the forecasters.

One could easily imagine that other closely-related rules which assign different levels of significance to the duration (year-over-year changes in the leading index instead of six-month annualized growth rates), the depth (four percent instead of three percent), or the diffusion (40 percent instead of 50 percent) could lead to a different assessment of the recession risks prior to these recessions. This suggests strongly that any one rule alone is not sufficient to interpret the data, and a careful analysis of all the business cycle indicators within the context of the domestic and global economic environment is required.

The seeming prevalence of false signals occurs because of reliance on a rule-based, naive reading of the leading index. If all available indicators are interpreted thoroughly, individually as well as in combination, one can evaluate the risks of the economy entering a recession more realistically. As Victor Zarnowitz and Charlotte Boschan, two leading economists in the research and development of the leading economic indicators pointed out:

*There is no single proven and accepted cause of cyclical fluctuations nor a single invariable chain of symptoms…. Some leading indicators, then, would prove most useful in one set of conditions, others in a different set. To increase the chances of getting true signals and reduce those of getting false ones, it is advisable to rely on all such potentially useful indicators as a group.[[1]](#endnote-1)*

Unfortunately, such a detailed reading of the data is difficult to translate into simple rules, and requires familiarity and practical experience with empirical facts as well as economic theory.

5. *Criteria for inclusion in index*. Ten statistical series comprise the index. There are four general criteria for inclusion in the index:

* Each series must accurately lead, be coincident with, or lag the business cycle, depending on the economic index.
* The various series should provide comprehensive coverage of the economy by representing a wide and diverse range of economic activity.
* Each series must be available monthly, with only a brief lag until publication.
* Each series must be free from large subsequent revisions.

The composite economic indicators meet these criteria, and weaving these series into a comprehensive composite provides a statistic that is more reliable and less erratic than any individual component by itself.

Some of the indicators measure activity in physical units, others in current dollars, still others in constant dollars, and some with an index form. This variety of measurements is reduced to an index with 1996 assigned a base value of 100. All other months and years are expressed as a percentage of the base year.

6. *Components.*

a) *Unemployment claims.* The average weekly initial claims for unemployment insurance (state programs) gives a sense of the number of people losing their jobs. A falling number is a sign that the economy is growing.

b) *Orders for consumer goods.* Manufacturers’ new orders, consumer goods, and materials industries, if rising, are a signal consumers are spending more freely. Reduced reported orders suggest greater consumer uncertainty and decreasing overall demand.

c) *Building permits*. The number of new private housing units authorized by local building permits is one of the most widely watched measures of economic health. The housing market is extremely sensitive to the business cycle and consumer sentiment. If consumers are becoming more pessimistic about economic prospects, it is quickly reflected by a drop in new housing demand. Conversely, if consumer sentiment turns optimistic, housing demand typically rebounds quickly.

d) *Interest-rate spread.* (10-year Treasury bonds less federal funds). As demands for loan funds goes up (a bullish sign), bank reserves get tighter and the price (interest rate) that banks must pay to acquire overnight funds to meet reserve requirements goes up. As a result, the spread between the 10-year Treasury bond rate and the federal funds rate declines. In contrast, when demand for loan funds falls, the spread increases, which suggests that the market may be heading toward a downturn.

e) *Workweek*. The average weekly hours of production for nonsupervisory workers in manufacturing is a complement to the factory-orders indicator. If both components are up, it is a bullish indicator. If orders are up, but the average weekly hours of production has not also increased, it may indicate that manufacturers are not overly optimistic that the level of demand will be sustained. In contrast, if orders have not increased, but weekly hours are up, it suggests that manufacturers anticipate higher demand, a bullish indicator. Clearly, if both indicators are down, it is a very bearish indicator of future economic activity.

f) *Slower deliveries*. Vendor performance (slower deliveries diffusion index) is a complement to the order-backlog indicator. As demand increases, deliveries tend to get slower as vendors try to fill orders. In contrast, as demand subsides, vendors are able to fill orders more quickly.

g) *Plant and equipment orders* (manufacturers’ new orders for nondefense capital goods). Contracts and orders for plant and equipment (and machine tools) increase when producers plan to expand their productive capacity; a clearly bullish indicator, because it is both a sign of increasing demand (by producers) and a sign of optimism on the part of producers that future demand for their products will be sufficient to justify the additional investment in plant and equipment.

h) *Stock prices*. The S&P 500 Index of common stocks has typically led economic recoveries and recessions by about nine months. Because the S&P 500 Index is a measure of the overall value of the industrial capacity of the economy and the value of the stock market reflects the beliefs and sentiments of essentially the entire universe of economic participants, it is not surprising this indicator tends to lead the business cycle. The problem with this indicator alone is similar to that of the leading economic indicators taken together, only worse. As one economist summed it up, “the S&P 500 Index has predicted 15 of the last nine recessions.”

Consumer sentiment clearly has an impact on economic activity, but like a large ocean-going vessel, it takes considerable and sustained waves and current (negative or pessimistic expectations) to drive the vessel (or economic activity) off course. In contrast, the stock market can respond quickly, even to ephemeral changes in investor sentiment. Consequently, stock prices are much more volatile than the business cycle itself and, alone, cannot be reliably used to forecast economic activity.

i) *Money supply (M2)*. When the Federal Reserve ceases to pump enough money into the economy, short-term interest rates rise as borrowers compete for fewer available dollars. As interest rates rise, the cost of credit purchases, as well as the carrying costs for inventory, also increase, inevitably reducing consumer demand while raising producer’s costs. The net effect is bearish. In contrast, an increase in the money supply can reduce short-term rates, at least in the short run, with a stimulative effect on the economy. The problem with increases in the money supply is that if the increases become excessive, inflation will rise, as will interest rates, once again with a negative impact on overall demand.

j) *Index of consumer expectations*. If consumers feel good about their current situation and about the future, they tend to spend more freely, which boosts economic growth. If they are worried about things like job security, they tend to save more and spend less, slowing economic growth and the economy.

Consumer sentiment is measured in several different ways. Three of the principal guides that economists use are:

(i) *The index of consumer expectations*. The University of Michigan Institute for Social Research (UMISR), which compiles the index of consumer expectations, asks a number of questions, including whether consumers are confident enough to take on debt for such big-ticket items as cars and appliances. Responses are tabulated according to whether consumers perceive conditions as better than, or worse than, a year earlier. UNISR constructs an index comparing the outcome to that for a base year.

(ii) *The index of consumer confidence*. The Conference Board index focuses on consumer worries about job security. This index is closely correlated with the index of consumer expectations, but tends to be more volatile.

(iii) *The Sindlinger report*. The Sindlinger report focuses on consumer’s willingness to spend money on short-term purchases. It also compares the confidence levels of investors and noninvestors, which can be influenced by the performance of the financial markets.

**Special Note:**

The Conference Board announced in December 2011 that, for the first time since 1996, they were changing the U.S. leading economic indicator index. The changes to the index include deletions of (1) the inflation-adjusted money supply, (2) the Institute for Supply Management’s supplier deliveries gauge, (3) the Thomson Reuters/University of Michigan’s measure of consumer expectations, and (4) the Commerce Department’s orders for non-defense capital goods.

The Conference Board’s own Leading Credit Index, which aggregates measures of the yield curve, interest-rate swaps, and the Federal Reserve’s senior loan officer survey, replaced the money supply. The ISM’s supplier deliveries gauge gave way to the group’s index of new orders. Instead of using one measure of consumer confidence, the revised index includes an equally weighted average of the Michigan sentiment expectations reading and the Conference Board’s own measure. Finally, a capital goods component that excludes commercial aircraft replaced the existing capital goods component.

The Conference Board said the changes were in response to structural changes in the U.S. economy and were aimed at making the LEI a better predictor of peaks and troughs in the business cycle. The new index started with the December 2011 number coming out on Jan. 26, 2012, and readings were to be revised retroactively to 1990.

7. *Coincident and lagging economic indicators*. The *Wall Street Journal* and other business/finance publications typically report the indexes of coincident and lagging economic indicators when it reports the index of leading economic indicators. These indexes, like the leading index, are composite indexes of several economic series that tend to move concurrently with and after changes in the general level of economic activity, respectively.

The coincident index is composed of four indicators that tend to move in concert with the business cycle:

* Employees on nonagricultural payrolls
* Personal income less transfer payments
* Industrial production
* Manufacturing and trade sales

The lagging index is composed of seven indicators that tend to lag the business cycle:

* Average duration of unemployment
* Inventory-to-sales ratio, manufacturing and trade
* Labor cost per unit of output, manufacturing
* Average prime rate
* Commercial and industrial loans
* Consumer installment credit to personal income ratio
* Consumer price index for services

So, what value would such indexes have for forecasting economic activity? Economists have discovered that the ratio of the indexes of coincident indicators to lagging indicators provides, in general, an even greater lead time in predicting changes in economic activity than the leading index. This ratio has given a warning of a recession about four months earlier than the leading index, on average.

Thus, when both the leading index and the ratio of the indexes of the coincident and lagging indicators are up, it is a very strong bullish signal. However, when the leading index is up or level, but the ratio of coincident to lagging indexes is down, one should keep an especially wary eye on the leading economic indicators and other indicia of economic activity. A slowdown in the economy may be just around the corner.

Other Economic Indicators

Consumer Demand and the Business Cycle

If consumer demand would grow at a relatively constant sustainable rate, there would be far fewer fluctuations in economic activity and little or no business cycle. So why does consumer demand fluctuate?

As noted above, each expansion sows the seeds of the following recession because every expansion is fueled by credit. Consumers and businesses borrow to buy new homes, cars, factories, and machinery. The more they borrow and spend, the faster demand grows, pushing production into higher gear in order to keep pace with demand. But sooner or later, the upward spiral of borrowing and spending comes to an end. The strain on productive capacity forces costs higher, pushing up prices. Inflation depresses consumer sentiment and consumers respond by curtailing their expenditures. Consumers also find that their incomes cannot support the burden of additional debt repayment. Businesses, having accomplished their targeted growth in plant and equipment, cut back or cease their expenditures in this area. Once business and consumer borrowing and spending start to decline, the slump begins and production and income falls. Subsequently, inflation subsides with the drop in demand. Debt is repaid. As the demand for borrowing declines, the cost of borrowing (interest rates) also declines. Businesses that have cut back on production eventually begin to deplete their inventories. With lower borrowing costs and generally lower relative materials prices and wages, producers ultimately must increase production to meet demand. Jobs increase, layoffs are called back to work, consumer sentiment rises, and with it, consumer spending. The cycle is ready to repeat itself.

Several statistical series are especially indicative of consumer demand, including the CPI, auto sales, consumer credit, and housing starts.

1. *Consumer Price Index (CPI)*. The fluctuations in the CPI chart the course of inflation. Lower inflation leads to improved consumer sentiment and demand, which drives economic expansion forward.

The CPI measures relative price changes over time. The CPI is calculated by compiling a list of goods and services purchased by the typical consumer, including such items as food, clothing, shelter, public utilities, and medical care, which make up a market basket. The price of each item is recorded and assigned a weight according to its relative importance in the basket. Changes in the prices of each item are noted and the percentage change in the total price is reflected in the change of the index number.

The basket of goods and services included in the index is changed periodically to reflect changes in tastes and the introduction of new goods and services or improvements in old goods and services. Although it is designed to measure overall changes in prices, it is not really a cost-of-living index. The market basket is relatively fixed. However, consumers typically substitute one good or service for another as relative prices change or with changes in income. Consequently, it is not necessarily a good measure of changes in the cost of living for any particular individual. However, it is a relatively good measure of the overall economy-wide cost of living. In addition, the CPI is the basis for adjusting Social Security payments and determining cost-of-living increases in pensions and wages, as well as for indexing of tax-rate tables and many other tax-related variables and limitations.

2. *Auto sales*. This is a critical statistic because domestic auto sales historically have led the cycle into both expansion and contraction. The auto industry, along with the cluster of industries that depends upon it (e.g., rubber tire, steel, glass, upholstery, gasoline) represents a significant share of the total economic activity. In addition, although what may be good for GM may not necessarily be good for America, GM’s sales (and those of the other domestically produced autos, including foreign cars domestically made, such as Mitsubishi, Honda, and Toyota, as well as others) are a reliable indicator of overall economic activity.

3. *Consumer credit.* The *Wall Street Journal* publishes the Commerce Department’s release on consumer installment debt in the second week of the month. Changes in consumer credit have been an important barometer of consumer activity because consumers have typically borrowed heavily to finance purchases of autos and other expensive and postponable items such as appliances, furniture, home improvements, and vacations.

Both consumer sentiment and consumer credit fell steeply in the 1990-91 recession. Historically, increases in consumer credit trailed off with surges in inflation and drops in consumer sentiment. Then with each recession and the ultimate return of consumer confidence, consumer credit rebounded.

4. *Housing starts.* The Commerce Department’s monthly release on housing starts is usually published in *The Wall Street Journal* between the seventeenth and twentieth of the month.

The cyclical sensitivity of housing starts to consumer sentiment and the availability of mortgage credit is striking. Housing starts turn down well before the onset of recession, as soon as rising inflation reduces consumer confidence. The Federal Reserve’s actions to reduce money supply to curtail inflation are quickly reflected in mortgage rates, which have a dramatic impact on housing demand. Typically, however, housing starts increase even before a recession has ended as consumer confidence increases and the Fed switches to an easier money policy.

Similar to the auto industry, the housing construction industry has a significant impact on a number of supporting industries, including lumber, cement, glass, roofing, materials, heating, plumbing and electrical supplies, kitchen and laundry appliances, and furniture and furnishings.

Consumer debt and consumer demand have been the leading edge of the post-World-War-II business cycle. Ironically, their strong growth has led to cyclical problems with inflation, which periodically tended to choke off credit, demand, and economic expansion, generating recession.

As the cycle has moved from peak to contraction, rapidly rising inflation depressed consumer real income and consumer sentiment, bringing on collapse in consumer demand and inevitable recession.

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| --- |
| **CPI ↑ 🡺 Consumer Sentiment ↓ 🡺 Consumer Demand ↓** |

As the cycle has moved from contraction to recovery, reduced inflation spurred consumer sentiment and consumer demand, inevitably leading to another round of excess credit demand and inflation.

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| --- |
| **CPI ↓ 🡺 Consumer Sentiment ↑ 🡺 Consumer Demand ↑** |

Output and Efficiency

Gross national product (GNP), industrial production, and capacity utilization measure the economy’s output; productivity measures its efficiency. As output increases, efficiency decreases, and inflation (as reported by the producer price index) inevitably increases.

At the peak of the cycle, when output is at its maximum, production facilities are strained to the point where production costs rise sharply. Overburdened equipment fails, accelerating the expense of maintenance and repair. The quantities of labor added to the production process are relatively greater than the increase in output. Inevitable inefficiencies force up costs, and consequently prices, even though the product itself has not changed. As the obvious result, inflation increases rapidly. With a recession’s drop in production, the strain on facilities and labor eases. Costs fall, inflation declines, and the stage is set for a new round of expansion and growth.

* *Gross Domestic Product (GDP)*. GDP measures the total value of all the goods and services produced in the United States and are the official scale with which fluctuations in the economy are measured. The *Wall Street Journal* reports GDP about three weeks after the close of each quarter.
* *Constant-dollar (real) GDP.* Measures the final output of goods and services produced in the U.S. in one year, without including the impact of changed prices on the value of those goods. The base year is 1987. An annual change of three percent is considered good and sustainable. Growth of more than five percent is unusual and unsustainable for any lengthy period of time. The economy simply cannot produce more than that without an increase in prices because of the limits on our productive capacity at any given moment. Real GDP should increase with increases in population and technological advances. If the work force grows at a higher rate, then real GDP should grow at a higher rate, but there are limits on the rate of technological improvements and the investment capital to implement those improvements, which limit overall sustainable growth above certain limits.
* *Current-dollar (nominal) GDP.* The CPI is not the only, or even the best, measure of inflation. The fixed-weight price index for gross domestic purchases, which includes everything bought in the U.S., including imports, is the broadest measure of price increases. The producer price index, which covers wholesale prices of goods, but not services, shows the changes in prices charged by producers of finished goods.
* *Industrial production*. The index of industrial production measures changes in the output of the mining, manufacturing, and gas and electric utility sectors of the economy. It is a narrower concept than GDP because it excludes agriculture, construction, wholesale and retail trade, transportation, communications, services, finance, and government. It is more volatile than GDP, because GDP includes services, finance, and government, which are less sensitive to cyclical fluctuations.
* *Capacity utilization (factory operating rate)*. Capacity utilization is the rate at which mining, manufacturing, and public utilities industries operate, expressed as a percentage of the maximum rate at which they could operate under existing conditions. Essentially, it is a measure of what these industries are currently producing compared to the most they could produce using all their present resources.

Capacity utilization is a short-run concept determined by a company’s current physical limits; at any moment in which capacity utilization is reported, it is assumed that the company’s plant and equipment cannot be increased, although labor and other inputs can.

What bearing does capacity utilization have on the efficiency or productivity of industry? Similar to a car and its speed, industrial plant and equipment operate at greater efficiency at lower levels of utilization. As capacity utilization increases, returns diminish, just like the fuel economy of a car at higher speeds. At a certain level of utilization, the industry passes the point of diminishing returns. The point will ultimately be reached where the percentage increases in output will become smaller than the percentage increases in inputs.

The reasons for this are numerous and reasonable. At low levels of utilization there is ample time to inspect, maintain, and repair equipment; accidental damage can be held to a minimum; and production increases can be achieved easily in a smoothly efficient plant. However, as the operating level increases, it becomes more difficult to inspect, maintain, and repair equipment.

Furthermore, as production increases, more labor is hired, and these workers are generally less experienced and usually less efficient than the older workers. If more hours are scheduled, errors caused by fatigue and accidents will increase.

* *Labor productivity and unit labor costs*. Labor productivity measures output or production per unit of labor input (e.g., output per hour) and is the most important gauge of our nation’s efficiency. Its significance cannot be overemphasized because per capita real income cannot improve, and therefore the nation’s standard of living cannot rise, without an increase in per capita production.

Unit labor cost measures the cost of labor per unit of output. It is the inverse of labor productivity. It tells one how much added labor is required to produce an additional unit of output.

Inventories

Inventories are stocks of goods on hand: raw materials, goods in process, or finished products. Individual businesses use them to bring stability to their operations, but they actually have a destabilizing effect on the business cycle overall.

Inventories are expensive. Money tied up in inventories could be invested, so the opportunity cost of inventories is the amount that could be earned by investing the money. Businesses generally want to maintain minimum inventories, but they need inventories to meet fluctuations in demand for their products, variations in the production schedules, etc. in order to maintain smooth operations and to keep customers satisfied.

How do inventories, which are so necessary to the smooth functioning of an individual business, exacerbate the business cycle?

During an expansion, as demand grows, companies will increase inventories faster than the demand to avoid shortages and possible loss of customers. As a result, industrial production increases more vigorously than it otherwise would, accentuating the cyclical expansion and the swift rise in capacity utilization. For the economy as a whole, production grows more rapidly than sales, which hastens the inevitable decrease in labor productivity and increase in unit labor costs. Thus, inventory accumulation adds to inflationary pressures.

When the economy turns down, businesses curtail production in order to prevent involuntary inventory accumulation. In fact, in anticipation of declining demand, companies rush to reduce output and to begin to liquidate inventory. But as goods are sold from inventory, output and employment are reduced more than sales. This aggravates the cycle’s downturn.

Therefore, inventories are destabilizing because inventory accumulation boosts output above sales during the expansion phase of the cycle and inventory liquidation depresses output during the contraction phase.

The inventory-sales ratio, which is typically reported along with other business inventory statistics, is a critical statistic. It measures the number of months it would take businesses to run through stockpiles at the current sales rate. In the past, an inventory-sales ratio exceeding 1.6 was taken as a sign that inventories had become bloated and that either demand was waning or that businesses would soon begin to cut production to bring inventories more in line with sales. In either case, it was an indication that industrial production was more likely than not to fall and that a recession was looming on the horizon.

INFLATION, DEFLATION, AND DISINFLATION

Inflation is a sustained increase in price levels. Deflation is the opposite of inflation; deflation is a sustained decrease in price levels. Disinflation is a level of inflation that is declining.

Through most periods of modern history, there has been some level of inflation. At times, the rate of inflation has declined so that there was disinflation. Long periods of deflation have generally been associated with economic depressions. However, there have also been periods of stagflation where inflation has been high during periods of recession.

As described above, the Consumer Price Index (CPI) measures relative price changes of a basket of goods over time. The CPI is often used as an overall measure of inflation.

As discussed above, inflation is often used as one of many economic indicators.

YIELD CURVES

At any point in time, a yield curve shows the relation of current interest rates to different time horizons. For example, the interest rate for an investment that matures in one year might be 2%, for five years 5%, and for ten years 8%.

All other things being equal, an investment for a longer period of time is generally regarded as riskier and is rewarded with a higher interest rate than an investment for a shorter period of time. Thus, the yield curve generally reflects higher interest rates for longer investment horizons and is upward sloping.

However, there have been times when the yield curve has been downward sloping. At such times, the yield curve has reflected higher interest rates for shorter investment horizons than for longer investment horizons. During such times, the expectation is usually that interest rates in the future will be lower.

As discussed above, interest rates are often used as one of many economic indicators.

CHAPTER ENDNOTE

1. . *Business Conditions Digest*, May 1975. [↑](#endnote-ref-1)