

# The Short Run and Long Run

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The short run and the long run are two separate time horizons in microeconomics that the company is considered to function in. These times don't line up with the calendar. Rather, they are described in terms of the inputs of the company. All factors of production are changeable in the short term, with the exception of at least one fixed element of production, which is often capital the company's structures, equipment, and other permanent inputs. All expenses related to capital are referred to as fixed costs since capital is fixed in the near term. The company may essentially overlook such expenses in the near term: Whether the company produces nothing at all or 10 million units of product, they will still be incurred. Only variable costs, which increase or decrease based on how much output the business creates, are subject to short-term change. The long run differs from the short run in that all production factors turn into variables. Fixed expenses are no longer present. New businesses may join the market, while established businesses may increase their output capacity or completely exit the sector.

The equilibrium level of earnings for each business is a key factor in distinguishing between the long and short runs. There is an average rate of return that capital in the economy as a whole earns at any given period. Assuming there are no barriers to entry, businesses will join an industry when earnings there surpass the average profit rate for similar investments. As more firms enter the market, the industry's overall production rises, its price falls, and each company's revenue declines as a result. Additionally, when there is more rivalry for manufacturing elements, input prices rise, increasing the expenses for each business. Each company's earnings decrease as a result of the interaction of these two pressures. When gains reach the average rate, entry stops.

A unique technique of summarising these facts is used by economists. When expenses are deducted from revenues to arrive at economic profits, the average return on capital is recognised as one of those costs. As a result, it is argued that economic profits are zero when the rate of return on invested capital in this business is equal to the average for the economy as a whole. This leads to the conclusion that in an industry that is in long-term equilibrium, economic earnings are zero. In long-run equilibrium, inputs will be utilised most effectively since this condition can only exist at the lowest point of the firm's average cost curve, when the average costs of production are as low as they can possibly be. Therefore, rather than being a nightmare, the situation of zero economic gains is really a desirable one.

## **Equilibrium in a Perfectly Competitive Industry**

A perfectly competitive industry is one in which there are so many firms that no one of them can affect the market price through its individual decisions and where there are so many consumers that no one consumer's individual utility-maximizing decisions can affect the market price. The downward-sloping demand curve and the upward-sloping supply curve, respectively, may be used to illustrate the industry's overall output demand and supply. The intersection of the aggregate supply and demand curves represents the market-clearing or equilibrium price and quantity. Consumers and providers make consistent selections at that price and quantity combination.

Examining what would occur if a different price-quantity combination were acquired might help one understand why the combination is an equilibrium. Let's say the opening price on the market was at such price, utility-maximizing customers would be willing to buy units of output, allowing producers to

maximise their profits by providing them. These supply and demand choices are erratic. When buyers want to purchase more than what producers would want to sell, this is known as a surplus. What will happen to this surplus supply in the market? The market price must undoubtedly decrease. The difference between supply and demand will close when the price drops because customers will want more while manufacturers will provide less. The cost might eventually approach as we've seen, the quantity that providers want to sell and the amount that customers want to buy are equal at that price.

### Equilibrium in a Monopolistic Market

Monopoly is the market structure's opposite extreme. Since there is just one supplier under a monopoly, both the industry and the company are the same. Only in situations where there exist entry obstacles that prevent the emergence of rival enterprises can a monopoly develop and endure. Such obstacles often come from two different places: first, from statutory and other legislative entrance limits; and second, from technical production circumstances known as economies of scale. The Civil Aeronautics Board's reluctance to approve entrance of new airlines into the market for passenger traffic on such important routes as Los Angeles-New York and Chicago-Miami from the 1930s until the mid-1970s is an example of a legislative limitation on entry[1]–[3].

Technology is the second barrier to entrance. A manufacturing situation known as economies of scale occurs when the average cost of production decreases as output increases. When these circumstances are present, one business may create any amount of production for less money than many enterprises. A monopolist that derives its viability from economies of scale is also referred to as a natural monopoly. Local water, telecommunications, cable, and electricity corporations are examples of public utilities that often function as natural monopolies. If the single business is permitted to vary the quantity of output units sold, some of the technical benefits of a natural monopoly would be lost. The price of production is the same as marginal revenue for the competitive company. Each extra unit of production sold adds precisely the selling price to the business's total revenues since the competitive firm can sell as much as it wants at the going rate. However, when more units are sold, the monopolist's marginal income decreases. This is seen by the downward-sloping curve with the label MR

The MR curve is located below the demand curve, as you can see. This shows that a monopolist's marginal income from each unit sold is always less than the selling price. The sale of each of those units raises the company's overall revenues, albeit at a diminishing pace, since MR is positive but dropping for output units between 0 and 9. The unit really does nothing to increase the company's overall revenues, and because the value of each additional unit of production beyond MR is less than zero, those additional units actually decrease the monopolist's overall revenues. The downward-sloping demand curve is what causes the complicated connection between marginal revenue and the number of units the monopolist sells. The downward-sloping demand curve suggests that the monopolist must reduce prices to sell more units, but in order to do so, he or she must drop prices across the board, not only on the last or marginal unit. <sup>11</sup> Calculus may be used to demonstrate from this fact that the increase to total revenues from a further unit of product sold will always be less than the unit's price. Therefore, the MR curve must likewise be downward sloping and fall below the demand curve since MR is always less than the price for all units of production and because price decreases throughout the demand curve.

By selecting the production level where marginal income and marginal cost are equal, the monopolist maximises his profit this output level. According to the demand curve, customers are ready to pay for that level of production. The profit-maximizing behaviours of the businesses would have produced an equilibrium price and quantity at the intersection of the industry demand curve, D, and the aggregate supply curve, S, if this industry had been competitive rather than monopolistic. The economists differentiate additional market structures that are in the middle between perfect competition and monopoly, with the competitive price being lower than the monopolistic price. These all have oligopoly and imperfect competition as their main characteristics.

A market with a few enterprises that are aware of the interdependence between their individual profit-maximizing choices is said to be an oligopolistic market. Accordingly, what is best for company A relies not only on its marginal costs and the demand for its production, but also on the products and prices that businesses B, C, and D have chosen to produce. Understanding game theory is necessary for the economic study of this interdependence, which we go through below. The majority of the traits of a perfectly competitive market such as open entry and exit for businesses and the presence of numerous businesses are also present in an imperfectly competitive market, but it also has one significant monopolistic component: Businesses produce differentiable output rather than the homogeneous output produced by perfectly competitive businesses.

### **General Equilibrium and Welfare Economics**

In order to describe how consumers and businesses make choices, the microeconomic theory we have been studying up to this point has mainly emphasised the essential ideas of Maximisation, equilibrium, and efficiency. The area of microeconomic theory known as welfare economics investigates how choices made by many people and businesses interact to influence the general wellbeing of people. Compared to other areas of microeconomic theory, welfare economics is much more philosophical.

### **General Equilibrium and Efficiency Theorems**

The definition of the circumstances under which the independent choices of utility-maximizing customers and profit-maximizing businesses would result in the unavoidable, spontaneous formation of equilibrium in all markets at once is one of the major achievements of contemporary microeconomics. General equilibrium is the name given to such a situation. General equilibrium won't be reached until all goods and services on the market have equal marginal benefits and marginal costs as a result of competitive pressures. This circumstance is unlikely to occur in reality, as you can readily guess. However, there are two practical reasons to be aware of the prerequisites for global equilibrium. First, many real-world marketplaces will comply with those requirements, even if not all of them will. Second, the definition of the circumstances that result in general equilibrium offers a standard for assessing distinct markets and formulating suggestions for governmental action. The general equilibrium is both productively and allocatively efficient, which is a property that economists refer to as socially optimum. This is shown by modern microeconomics.

### **Market Failure**

In terms of wellbeing, environmental equilibrium is such a desirable result that understanding the circumstances under which it would hold would be useful. If all markets are totally competitive, it is the very minimum need. We can describe the potential issues that might arise in a market and prevent this crucial condition from being met. The four so-called origins of market failure will be discussed in this part, along with the governmental policies that, in principle, may be used to address them.

### **Monopoly and Market Power**

Monopoly in all of its forms including monopoly in the output market, cooperation among businesses or input providers that would otherwise be competitors, and monopsony one buyer in the input market is the initial cause of market failure. Marginal gain and marginal cost would be equal in a competitive market. However, the monopolist's output and price combination that maximises profits only materializes when the price surpasses the marginal cost of production. From an efficiency standpoint, the price is too high and the supply is too little. The governmental policies for addressing the drawbacks of monopoly are to, where feasible, substitute competition for monopoly or to limit the monopolist's pricing. The justification for the antitrust laws is the first policy. However, there are situations when it is either impossible or undesirable to remove a monopoly. Public utilities are one example of a natural monopoly that is permitted to continue operating while having its pricing regulated by the government.

### **Externalities**

The existence of what economists refer to as externalities is the second cause of market failure. In a market, trade is voluntary and advantageous to both parties. The parties to the transaction often get all the rewards and incur all the expenses, giving them the most insight into how desirable the exchange will be. But sometimes, persons other than those who are officially involved in the transaction may also gain from the deal. Additionally, the exchange's expenses could transfer to other parties. An external gain may be seen in the first situation, whereas an external expense can be seen in the second. The pollination that a beekeeper offers to his neighbor who manages an apple orchard is an example of an external benefit. Pollution of the air or water is an example of an external cost. byproduct of its manufacturing process, a plant upstream from a populated metropolis discharges harmful compounds into the river. The townsfolk downstream pay an extra price as a result of the factory's action: they must pay to purify the water or bring in safe water from elsewhere. What aspect of this example's market has failed? Because the externality's creator is not required to make restitution for damaging others, they fail to exercise sufficient self-control, which causes the market to collapse in the face of external costs. He or she presents the cost of disposing of garbage as being zero although, as many downstream can attest, there are actual expenses associated. Technically speaking, the discrepancy between private marginal cost and societal marginal cost causes the externality generator to create too much production and too much damage[4]–[6].

### **Public Goods**

The existence of a good known as a public good is the third cause of market failure. A good that serves the public has these two closely linked qualities. When one person consumes a common product, it does not reduce the amount available to other consumers.

When it comes to excluding nonpaying beneficiaries who use the item, the costs are so high that no private enterprise that seeks to maximise profits would be ready to provide it. Have a look at national defence. For illustration's sake, let's imagine that contending for the right to supply national defence is a private company. A business could provide its clients protection against financial loss brought on by a foreign invasion by air, land, or sea in exchange for an annual charge. Only clients who pay for a business' services would be shielded from foreign invasion. Maybe these clients might wear distinctive clothing, and their houses' roofs could be marked with a big white X to identify their property.

Who will pay for these private national defence firms' services? Many won't, but some will. The reasoning behind many of the non-buyers is that if their neighbour buys a protection cover from a commercial national defense firm, then they will also be protected: It will be almost difficult for the private firm to safeguard the neighbor's possessions and person without also offering protection to the neighborhood non-purchaser. As a result, national defence consumption is nonrivalrous, meaning that one consumer's spending has no negative effects on other consumers. In order to take advantage of others' payments without incurring any costs themselves, customers of the publicly given product that is privately offered are strongly encouraged to attempt to be free riders.

The challenge of excluding nonpaying beneficiaries is a comparable issue for the private provider of a public benefit. The effort to separate people who have paid to private defence businesses from those who have not is very guaranteed to fail since, for instance, identifying clothing and property marks are readily counterfeit able. It is unlikely that the private corporation will be able to persuade many individuals to buy defence services due to the existence of free riders and the high expense of differentiating between paying and nonpaying beneficiaries. Too little of that benefit will be offered if national defence is only supplied by profit-maximizing private corporations. Two general corrections are available. First, the government may decide to directly or indirectly use the tax system to subsidize the private supply of the public benefit. Basic scientific research is one instance. Second, the government may agree to provide the service itself and cover the associated expenses with money collected via mandatory taxes. In actuality, this is how national defence is provided.

### **Severe Informational Asymmetries**

A large informational imbalance between the participants to an exchange, one that prevents exchange, is the fourth cause of market failure. As an example, it often occurs that merchants are better knowledgeable about the caliber of items than are consumers. For instance, a seller of a vehicle is far more familiar with its eccentricities than a prospective buyer is. Similar to this, the bank is far more aware of the legal ramifications of a depository agreement than the consumer when it is presented for signing by someone establishing a checking account. Information is said to be dispersed asymmetrically in the market when sellers know more about a product than do buyers, or vice versa. In certain cases, these asymmetries may be eliminated via the process of voluntary exchange, such as when a seller agrees to provide a warranty to ensure the quality of a product. However, extreme asymmetries may seriously distort markets, making it impossible for free trade to lead to a socially optimal outcome. When that occurs, market intervention by the government may ideally compensate for the informational asymmetries and lead to greater interaction that is close to optimum. For instance, when it comes to discovering underlying flaws like the existence of termites or a broken foundation, prospective property buyers are sometimes at a disadvantage compared to the present owners. As a consequence, the market for housing sales could not operate effectively; buyers would overpay for properties or might ineffectively hold off on purchases out of concern about underlying flaws. In response, several jurisdictions now mandate that sellers inform potential homebuyers of any hidden flaws they may be aware of. The vendors could be liable for fixing such flaws if they fail to provide this notification [7]–[9].

### **Potential Pareto Improvements or Kaldor-Hicks Efficiency**

When the Pareto criteria wasn't good enough, economists came up with the idea of a prospective Pareto improvement, also known as Kaldor-Hicks efficiency. This is an effort to get around the Pareto criterion's constraint that only modifications that benefit at least one person and leave no one worse off should be suggested. According to that standard, winners must expressly make up for losers in any change. Losers have the right to block any changes if there is no clear payment. In other words, any changes need unanimous approval. As a guide for public policy, this has obvious drawbacks. In contrast, a prospective Pareto improvement permits modifications that result in both winners and losers, but it demands that the winners outperform the losers. The gainers may theoretically make up for the losses and yet keep a surplus for themselves if this need is met. Compensation need not be made in practice in order for there to be a Pareto improvement, but it must be theoretically feasible. This is essentially a cost-benefit analysis method.

When a project's advantages outweigh its costs according to a cost-benefit analysis, it is assumed that the winners may be able to make up for the losers. The goal of cost-benefit analysis is to consider both the personal and public expenses and benefits of the proposed course of action. Although this criterion has theoretical and empirical flaws, it is essential to practical welfare economics. Think about how the Pareto criterion and the Kaldor-Hicks criterion may be used to examine the choice to move a manufacturing plant's efficiency and distributive fairness. Let's say the factory makes the announcement that it will relocate from Town A to Town B. There will be winners, including people in town B who will be hired by the new facility, local retail businesses and house builders, corporate shareholders, and so on. However, there will also be losers, such as individuals in town A who are now jobless, local retailers, the firm's consumers who are now placed farther away from the factory, etc. If the Pareto principle were to be used.

### **The Demand for Insurance**

People will spend money in order to avoid having to deal with unknown consequences, which is one of the most significant behavioral implications of risk aversion. So, a risk-averse individual could choose a lower income that is definite over a larger one that is uncertain. A risk-averse individual may turn an uncertain result into a definite one in three different ways. He might first get insurance from someone else. The insurance firm will assume the risk of the unpredictable occurrence in return for a specific quantity of money the insurance premium. The risk-averse individual believes that having a lower, known income is preferable than face a larger, uncertain income. He could also self-insure, as well. This

can include spending money in order to reduce the likelihood that an unknown event will occur or the financial loss in the case of a specific contingency. Installing smoke detectors in a house is one instance. A further method of self-insurance is to put away money to cover any losses. Third, someone who is afraid of taking risks who is thinking about buying a hazardous asset could lower the price he is prepared to pay.

### **The Supply of Insurance**

The information in the preceding section is about how risk-averse people want insurance. The provision of insurance by profit-maximizing insurance corporations will now be briefly discussed. The assumption is that insurance companies want to maximise their profits. They sell insurance contracts because to the law of big numbers, a mathematical principle, rather than because they choose gambling over certainty. According to this rule, things that are uncertain for one person become predictable for huge groups of people. For instance, none of us are certain that our home won't burn down the next year. However, fires occur often enough in cities, states, and countries for insurance companies to simply calculate the possibilities. An insurance firm can forecast the total number of claims by covering a lot of customers.

Moral hazard occurs when an insured individual or business alters their behaviour after purchasing insurance, increasing the likelihood of a loss or its severity. The insured's motivation to burn down his house after being permitted to insure it for a higher amount than its market worth is an extreme case. Loss as a result of theft provides a more realistic scenario. Let's say you just upgraded the sound system in your automobile, but you don't have insurance to cover theft-related losses. In these situations, you are probably going to lock your vehicle every time you leave it, park it somewhere well-lit at night, only use well-patrolled parking garages, and so on. Now imagine that you buy an insurance plan that, erroneously, will cover the whole cost of any loss covered by the policy. You may be less diligent about locking your vehicle or parking in well-lit areas now that the policy is in effect. In other words, you can conduct in a way that increases the likelihood of a loss only because your loss is covered.

The goal of insurance firms is to have their premiums be just little higher than the anticipated financial loss. A premium that has been established without taking into account the elevated risk of loss brought on by moral hazard will thus be too low and endanger the company's capacity to remain profitable. Every insurer is aware of this issue and has created strategies to reduce it. Coinsurance and deductibles are a few of the most typical ones. In a coinsurance plan, the insured bears a set percentage of the loss while the insurer covers the remaining amount; in a deductible plan, the insured bears a defined cash value while the insurer covers any losses in excess of that amount. Additionally, some insurance firms provide lower rates for a number of readily proven actions that lower claims. For instance, nonsmokers pay less for life and health insurance premiums, nondrinkers pay less for vehicle insurance, and those who install smoke detectors pay less for fire insurance.

### **Adverse Selection**

Adverse selection is the other significant issue that insurance firms deal with. This is brought on by how expensive it is for insurers to precisely identify high- and low-risk insureds. Although the rule of big numbers aids the business in determining probabilities, the average probabilities are what are determined from the huge sample. The average likelihood of a certain loss must be used to determine the insurance premium. For instance, according to insurance companies, unmarried male drivers between the ages of 16 and 25, let's say, have a substantially greater risk of getting in a car accident than do other identified categories of drivers. As a consequence, members of this group pay a greater insurance premium than members of other categories, whose risk of accident is substantially lower. However, even while young men between the ages of 16 and 25 who are single and not married are, on average, significantly more likely to be in an accident, there are some of them who are even more reckless than average and those who are much less irresponsible than the average. The premium that is set equal to the average likelihood of harm within the group will seem like a bargain to those who

know they are reckless and too high to those who know they are safer than their peers if it is difficult for the insurer to distinguish these groups from the larger group of unmarried males aged 16 to 25.

Let's suppose that most of the time, people are more aware of their genuine dangers than the insurance firm, which seems acceptable to assume. For instance, the insured alone may be aware that he often consumes alcohol, smokes in bed, or plans to kill his spouse, the major beneficiary of whose insurance policy he has just been designated. If true, then this asymmetrical information could only encourage high-risk individuals to get insurance while discouraging low-risk individuals from doing so. In turn, this will result in the insurance company having to pay out more claims than it had expected. Therefore, it can cause the premiums to increase further. As a result, some more, comparatively safer clients will go, leaving behind a clientele that is considerably risky. The frequency and number of claims might grow once again, resulting in a fresh round of premium hikes, the exodus of less-risky consumers, etc. A death spiral in insurance is the term used to describe this phenomenon.

The same strategies used by insurance firms to reduce moral hazard problems may also be used to reduce the issue of adverse selection. The willingness of an insured to accept coinsurance and deductible clauses may reveal to the insurance company to which risk class the applicant belongs since they are far less appealing to high-risk than low-risk insureds. Another strategy for attempting to separate high-risk and low-risk individuals is the exclusion of payments for loss resulting from prior illnesses. The insurer may also make an effort, over a longer time horizon, to lessen the adverse selection bias by creating better ways to distinguish between the insured, including medical and psychological testing, in order to put insureds in more precise risk classifications. Finally, experience rating the practices of modifying the insured's premium up or down based on his history of insurable losses is a common practice among insurers. If an insured person seems to be prone to accidents, the insurer may increase his premium to account for the increased likelihood or potential magnitude of loss. The insurer may decline to provide coverage to the insured within the limit.

## **Profits and Growth**

Imagine a banker who requests payment by putting a penny on each square of a chessboard one on the first square, two on the second, four on the third, and so on. The original penny would increase in value thirty-one times if just the white squares were used, leaving \$21.5 million on the last white square. Growth occurs more quickly than the mind can process. Canada's income per person now is more than three times larger than Argentina's was in 1900. After the Second World War, the national income per person in Korea and Nigeria was comparable; now, it is 19 times greater. The majority of Americans find it difficult to fathom China having more economic clout than the United States, yet if present trends continue, China will outperform the United States in terms of national GDP in 2014.<sup>16</sup> One of history's amazing achievements was helping so many people out of poverty in East Asia in the latter half of the 20th century. Sub-Saharan Africa, on the other hand, has had one of the most devastating economic disasters in recent history, with a nearly 25% fall in GDP per person since 1975 [10]–[12].

Why do some nations expand more quickly than others? Innovation is required for ongoing progress. A better approach to manufacture something or something better to make is what constitutes an invention. By enhancing organisations and markets, entrepreneurs make things better, and scientists create better materials for manufacturing. Until economics provides an acceptable explanation of innovation, growth will remain a mystery. The single advancement in growth theory to date that won a Nobel Prize in Economics illustrates the effects of innovation on labour and capital but makes no effort to explain it. We think that part of the answer to the puzzle is law. For the economy to expand, an innovator's novel concept has to be created. Combining new concepts and funding encounters the following basic difficulty: I know how your bank can earn \$10 million, said a letter that was sent to an economist at a Boston investment bank. I'll tell you if you give me \$1 million. The letter succinctly summarizes the issue of funding innovation: The innovator hates giving information to the bank without first being compensated, and the bank does not want to pay for information without first establishing its value. The key to resolving this issue is law.

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