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Introduction to Economics

Introduction

Everyone knows something about economics, and that includes you. Perhaps you first encountered economics as a child, seeking parents' generosity for that initial pocket money. Their advice to manage it wisely revealed the reality that your desires often surpassed the available funds and the rising price of your favourite snack. After a while, you asked for a 'raise'. Your parents blamed inflation but promised you nonetheless additional funds provided that you would work harder and aim for admission to a prestigious university. Undeterred by the university's low acceptance rate and high tuition fees, you decided to go for it. However, you soon discovered disparities in information accessibility. Wealthier peers had enrolled in preparatory courses, an option your parents couldn't afford. You wondered why regulations weren't in place to ensure equal access to university admission information for students from all socio-economic backgrounds. While most countries grant citizens a fundamental right to education, the regulation of higher education access varies greatly, with significant economic implications. This example, which may resonate with some readers, seeks to impart key concepts in economics and regulatory economics. Economics, a branch of the social sciences, examines how societies allocate scarce resources (such as money, raw materials and time) to produce goods and services.

The field of economics attempts to represent reality through the use of models and concepts, which involve abstraction to simplify complex phenomena. As Varian (2009) explains, economists are typically guided by the optimisation principle, which states that economic agents typically choose what is best for them, and by the equilibrium principle, which posits that prices will adjust until demand and supply are equal. Economics studies thus the production, distribution and growth of production and social welfare. It is a discipline with multiple subfields (e.g., public economics, industrial economics, financial economics, health economics and, more recently, the economics of happiness) using a wide range of methods (e.g., cost-benefit analysis, experiments, econometric analysis, game theory).

You may have heard of the distinction between microeconomics and macroeconomics: 'microeconomics focuses on the behavior of individual

economic units (consumers, firms, workers, investors) as well as the markets that these units comprise' (Pindyck and Rubinfeld 2018) and thus deals with how individuals and businesses manage their resources (e.g., how to best spend their pocket money). Macroeconomics takes a broader view and studies entire economies, trade, general economic performance and trends at national and international level such as the GDP, employment, inflation or aspects such as the wider economic benefits of higher education and its impact on economic growth.

Microeconomic concepts and tools underpin the most important conventional explanations of why we (need to) regulate (e.g., ensure all students have access to the same information regarding university admission) and how regulators and regulatees interact. For instance, regulation is traditionally justified by the need to correct states of asymmetric information between market actors. An illustration of information asymmetry occurs in the context of consumers seeking to purchase a second-hand vehicle from a seller, be it a professional car dealer or a private owner. In this scenario, buyers possess considerably less information about the vehicle's condition, such as its maintenance history and any past accidents, compared to sellers. Sellers may sometimes choose to withhold certain information or provide inaccurate details to potential buyers, who may not have the resources to verify the accuracy of the information provided. There are several ways to address information asymmetry and ensure fairness for all parties involved. Consumer protection regulations, for instance, require car sellers to disclose certain information to consumers and prohibit false statements and other deceptive practices.

Economics is central to understanding the vocabulary of regulation, the justifications offered in support of the need to regulate (see Chapter 4), the methodologies used to evaluate the costs, benefits and the overall impact of regulatory interventions in society and markets (see Chapter 5) and the challenges of holding regulators accountable for their actions when they misrepresent the public or private interests they were meant to protect (see Chapter 11). This chapter familiarises the novice reader with key concepts of microeconomics that will be used throughout the book. This introduction does not seek to offer a primer on economics, which is a complex science that cannot be reduced to one book chapter. Instead, it provides an accessible, high-level introduction to a number of important economic concepts that scholars and students of regulation may regularly encounter in the field of regulatory studies. The concepts might be at times technical as the chapter follows the terminology used in well-known economics literature.

This chapter is divided in three sections:

(i) Section 1.1 introduces **rational choice theory** and explains central economic concepts such as utility, efficiency and market failures;
(ii) Section 1.2 offers an introduction to **transaction cost economics**, introducing the Coase theorem, the concept of transaction costs and the principal-agent model;

(iii) Section 1.3 highlights some of the central contributions of **behavioural economics** to regulation.

1.1 Basic Concepts: Rational Choice, Efficiency and Market Failures

As Cooter and Ulen explain in the extract below, economics is based on a set of central assumptions. The first assumption is that all individuals seek to maximise their 'utility'. Utility is typically defined as the numerical score representing the satisfaction that a consumer gets from consuming a given good or service. For example, while some individuals will be happy buying a new item of clothing, others will be happier using the same amount of money to go out for a meal. We all have own personal concepts of utility that reflect our preferences and we will thus act individually in a rational way within these preference frameworks. Although firms are generally expected to prioritise profit maximisation, owners, shareholders or other stakeholders may choose to define additional goals. For instance, a chocolate company may invest in corporate social responsibility efforts, such as ensuring fair wages and prices for cocoa farmers.

1.1.1 Rational Choice Theory, Equilibrium and Efficiency

The maximisation of utility is considered a rational choice. Rational choice theory forms the primary framework of neoclassical economics, which is a foundational approach developed in the late nineteenth century that expanded in the early 1900s. Cooter and Ulen explain below that this framework relies on three central assumptions: first, individuals are self-interested and rational actors who make decisions to maximise their utility; second, even though every individual is self-interested and wishes to maximise their own utility, markets tend toward equilibrium through the adjustments of price and demand; third, economic agents pursue efficiency.

The rational choice theory assumes that individuals, often implicitly, make decisions based on the rational and accurate calculation of their costs and benefits. This calculation does not necessarily translate into monetary terms; it can be an intuitive assessment. For example, you might spend an afternoon helping a friend with their homework instead of playing sport because you wish to invest in your friendship. In regulation, this calculation can be complex, as Chapter 5 explains, as it may require regulators to assess not only the benefits of regulation but also its costs to all relevant stakeholders. Costs may also be challenging to measure, for instance, when innovation incentives may be (unduly) distorted. Since each regulatory intervention will have a cost to someone, economic concepts are essential to help us understand how to model the aims of regulation and evaluate costs and benefits.

Equilibrium is a central concept in economics and it occurs when economics forces (demand and supply) are balanced. Market equilibrium occurs when the quantity of goods and services produced equals the quantity demanded by

consumers. The result of market equilibrium is a stable price. The extract below refers to general equilibrium, which goes beyond individual markets to encompass the entire economy. While the concept of general equilibrium is important when introducing the novice reader to neoclassical economics, it does not account for the dynamism and innovation in certain regulated markets such as telecommunications and energy. In reality, regulatory analysis also considers dynamic competition and other novel approaches to address the complexities of these fast-changing sectors (see Chapter 3 on technological change).

The pursuit of efficiency is the third central assumption discussed in the extract. Microeconomics books typically define economic efficiency as 'the maximization of aggregate consumer and producer surplus'. There are, however, many different types of efficiency. Cooter and Ulen discuss two concepts of efficiency: *productive efficiency*, which implies that a given bundle of services is created at the lowest possible cost. There is productive efficiency when we are able to minimise the use of resources to produce a given output. There is productive inefficiency when productive resources are not efficiently used and the production is carried out at high costs. The extract also refers to allocative efficiency or Pareto efficiency, which describes a situation where 'scarce resources are used in a way in which they will benefit society as a whole to the greatest extent possible' (Haucap and Schwalbe 2011). Pareto efficiency is widely used in economics analysis. This state is achieved when it is not possible to improve the welfare of an individual by re-allocating resources without simultaneously reducing that of another.

Cooter, R., and Ulen, T. (2011). *Law and Economics*, 6th ed. Addison-Wesley.

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Economists usually assume that each economic actor maximizes something: Consumers maximize utility (that is, happiness or satisfaction), firms maximize profits, politicians maximize votes, bureaucracies maximize revenues, charities maximize social welfare, and so forth. Economists often say that models assuming maximizing behavior work because most people are rational, and rationality requires maximization.

One conception of rationality holds that a rational actor can rank alternatives according to the extent that they give her what she wants. In practice, the alternatives available to the actor are constrained .... A rational consumer should choose the best alternative that the constraints allow .... Choosing the best alternative that the constraints allow can be described mathematically as maximizing .... [T]he rational consumer ranks alternatives according to the extent that they give her what she wants. Consequently, better alternatives can be associated with larger numbers. Economists call this association a 'utility function', about which we shall say more in the following sections. Furthermore, the constraint on choice can usually be expressed mathematically as a 'feasibility constraint'. Choosing the best alternative that the constraints allow corresponds to maximizing the utility function subject to the feasibility constraint. So, the

consumer who goes shopping is said to maximize utility subject to her budget constraint.

Turning to the second fundamental concept, there is no habit of thought so deeply ingrained among economists as the urge to characterize each social phenomenon as an equilibrium in the interaction of maximizing actors. An equilibrium is a pattern of interaction that persists unless disturbed by outside forces. Economists usually assume that interactions tend toward an equilibrium, regardless of whether they occur in markets, elections, clubs, games, teams, corporations, or marriages.

There is a vital connection between maximization and equilibrium in microeconomic theory. We characterize the behavior of every individual or group as maximizing something. Maximizing behavior tends to push these individuals and groups toward a point of rest, an equilibrium. They certainly do not intend for an equilibrium to result; instead, they simply try to maximize whatever it is that interests them. Nonetheless, the interaction of maximizing agents usually results in an equilibrium . . ..

Turning to the third fundamental concept, economists have several **distinct definitions of efficiency**. A production process is said to be productively efficient if either of two conditions holds:

1. It is not possible to produce the same amount of output using a lower-cost combination of inputs, or
2. It is not possible to produce more output using the same combination of inputs.

Consider a firm that uses labor and machinery to produce a consumer good called a 'widget'. Suppose that the firm currently produces 100 widgets per week using 10 workers and 15 machines. The firm is productively efficient if

1. it is not possible to produce 100 widgets per week by using 10 workers and fewer than 15 machines, or by using 15 machines and fewer than 10 workers, or
2. it is not possible to produce more than 100 widgets per week from the combination of 10 workers and 15 machines.

The other kind of efficiency, called Pareto efficiency after its inventor or sometimes referred to as **allocative efficiency**, concerns the satisfaction of individual preferences. A particular situation is said to be Pareto or allocatively efficient if it is impossible to change it so as to make at least one person better off (in his own estimation) without making another person worse off (again, in his own estimation).

Productive and allocative efficiency are mostly applied, as analytical constructs, to static contexts, that is, situations where conditions remain unchanged over a specified period. However, in reality, our economies change over time and sectors such as the digital services sector are particularly dynamic. Therefore, conditions such as demand and supply do not remain constant. Also consumer preferences change over time (think, for example, of

fashion and how that shapes our garment preferences). The concept of dynamic efficiency moves beyond a specific point in time (such as the present), and instead, it analyzes the behaviour of firms over an extended period of time, say, two years. This concept is important in the realm of investments, where a focus on maximising social welfare over time is essential. Consider a scenario where a pharmaceutical firm invests fifty million dollars today into research to find a new medicine for curing diabetes. In the short term, its costs will increase and this firm will appear as productively inefficient. However, ten years later, the firm is likely to recoup this investment. As Haucap and Schwalbe (2011: 6) explain:

> it is not important that welfare is at maximum at every single point in time but rather that it is maximized throughout the relevant period. Dynamic inefficiency is thus the result of inadequate investment and innovation incentives.

These economic concepts of efficiency do not always guide us in understanding how to distribute welfare across different individuals, that is, to ensure that welfare (e.g., money) is not concentrated in the hands of a few households. This is why in regulation we consider a welfare function as a means of aggregating consumer utilities along with other concepts of efficiency.

Kaldor-Hicks efficiency, highlighted in the extract below, has been particularly influential in regulation. This concept is used not only to justify regulation but also to decide whether or not to regulate through cost-benefit analyses (see Chapter 5). Kaldor Hicks is defined by the compensation principle: efficiency occurs when those who benefit from a given intervention could, in theory, compensate those who are adversely affected, resulting in a potential Pareto improvement. This type of efficiency aims to assess changes in the welfare of society as a whole, assuming interpersonal compensation is possible. Social welfare is viewed as the sum of consumer and producer surplus.

The Kaldor-Hicks test has been criticised because it separates efficiency and equity and it ignores distributional impacts. The trade-off between distribution and efficiency is crucial in economics. Often efficiency is considered as a first step and then redistribution measures can be introduced to yield more equitable market outcomes (e.g., paying a lump sum subsidy to individuals in need). As the extract explains, Kaldor-Hicks efficiency is likely to disfavour local communities in low-income countries and deepen global inequality because it is based on a willingness-to-pay metrics which was defined primarily in the United States without regard for global differences.

> **Cook E. (2022).** 'Efficiently Unequal: The Global Rise of Kaldor-Hicks Neoliberalism'. *Global Intellectual History*, 9(1–2), 247–269, doi:10.1080/23801883.2022.2062423.
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> In 2006, the Panamanian government was debating whether it should move forward with four major hydroelectric projects surrounding the Changuinola-Teribe watershed, an area inhabited mostly by the indigenous communities of

Ngobe and Naso. To assist in this crucial decision, an American NGO by the name of Conservation Strategy Fund (CSF) was brought on by private investors and public representatives to conduct a cost–benefit analysis . . ..

The CSF deemed the project worthwhile because it added together all the monetized costs and benefits and found that the benefits outweighed the costs. Yet a closer, disaggregated look at their analysis reveals that things were hardly so cut and dry since there were clear winners and losers. The biggest winners by far would be the bankers financing the project, who would receive a return of $193 million . . .. The biggest losers, on the other hand, were the thousands of people who made up the Naso and Ngöbe indigenous communities who had lived along the soon-to-be-extinct rivers for generations. Attempting to put a price tag on the social dislocation, community erasure, cultural destruction and loss of autonomy which would take place if these communities were forced to relocate is impossible, and CSF did not even try to do so. Yet they nevertheless went on to price the damage done to the indigenous at a rather paltry $56 million by narrowly calculating only the losses they would incur by no longer having free access to the natural resources in the area – as if this was all that the indigenous people had lost. Luckily for the bankers and the energy corporation, this relatively low figure only put a small dent in the aggregated cost–benefit analysis. Corporate profits still outweighed indigenous losses, and so – accordingly to the logic of cost–benefit analysis which only looks at the size of the pie and not how it is sliced – the project was deemed economically efficient . . ..

[E]conomists and cost–benefit practitioners define[d here] an efficient outcome as one in which the overall amount of monetized wealth increases in the aggregate, regardless of who *actually* receives these monetary gains – or losses. Since wealthy (mostly foreign) investors would, in the example of the Panamanian hydro project, gain more than the local indigenous people would (supposedly) lose, the project was deemed – in accordance with the teachings of modern, neoclassical economics – efficient and – therefore – worthwhile.

This definition of economic efficiency is widely known today as 'Kaldor-Hicks efficiency'. It was first established in the late 1930s by two economists in Great Britain, Nicolas Kaldor and John Hicks. After being critiqued and marginalized for almost forty years, the Kaldor-Hicks criterion roared back in 1970s America – just as neoliberalism was taking off – as the dominant tool for determining if a given policy, regulation, decision or law should be given a green light or not . . ..

If the winners of a new policy can compensate the losers so that the latter are not harmed by the policy change and yet the winners are still – even after deducting the compensation to the losers – better off than they were before, Kaldor argued, then this serves as proof that the aggregate economic pie has gotten larger and, therefore, the policy is economically efficient and should be endorsed by economists.

Yet, and this is key, at the end of the passage Kaldor makes plain that this crucial compensation test – the heart of the Kaldor-Hicks criterion – is *strictly hypothetical* and under no circumstances should economists recommend whether or not the winners should, in fact, actually compensate the losers or not.

If productive, allocative and dynamic efficiency is not achieved in a market, there is a market failure.

1.1.2 Market Failures

Economics' starting point was, for a long time, a situation of 'perfect competition' where market actors can freely enter and exit the market, possessing perfect information about supply and demand. In this ideal scenario, there is no consideration for economies of scale, a situation in which you can double the output of production for less than the double of the investment or cost. In the case of a single product, economies of scale entail decreasing average costs. In a scenario of perfect competition, a firm would know exactly how much to produce and how much the consumer would be willing to pay for it. If regulators' sole goal were to pursue economic efficiency and if markets operated as described, then competitive markets should be better left alone. In reality, however, competition is often imperfect due to various factors such as market failures.

Market failure is defined as 'a situation in which an unregulated competitive market is inefficient because prices fail to provide proper signals to consumers and producers' (Pindyck and Rubinfeld 2018). Economic literature has identified four central causes for market failures: (i) imperfect competition with the existence of a natural monopoly as an extreme case, (ii) externalities, (iii) asymmetric information distribution which can result in moral hazard and adverse selection, (iv) public goods. Regulatory intervention is traditionally justified in these situations as it may lead to economic improvements.

1.1.2.1 Imperfect Competition and Monopolies

As the extract explains, monopolies – a market characterised by a single seller and numerous buyers – are the first source of market failures. Monopolists may exploit their dominant position by exerting control over prices and establishing profit-maximising prices for their products and services, deviating from what would typically prevail in a competitive market. A monopolist tends to produce less than would occur in a competitive market and sets a price higher than the competitive market price.

While pure monopolies are uncommon in our daily lives, instances of temporary monopolies persist, often created by intellectual property rights such as patents and copyrights. These rights exclude competition under the premise of incentivising research and development or fostering innovation. In various markets, such as energy and telecommunications, only a limited number of firms engage in competition, creating situations akin to monopolistic conditions.

A monopsony represents the opposite phenomenon, that is, a market with many sellers but only one buyer. Contrary to a competitive buyer, a monopsonist will pay a price that depends on the quantity that it purchases. While instances of pure monopsonies are rare, many markets exhibit monopsonist

behaviour when large buyers dominate the acquisition of production inputs. Monopoly and monopsony are two types of market power or the ability of a seller or buyer to affect the price of a good or service. In both cases, regulation such as competition laws seek to regulate the prices charged by monopolists or paid by monopsonists and ensure they do not abuse their market power.

As the extract explains, sometimes it is not possible to replace certain monopolies. This is the case of natural monopolies, a specific type of monopoly that exists if a single firm can produce the entire output of the market (the relevant demand) at a cost that is lower than it would be if there were several other firms. Economists refer to this as 'cost subadditivity', which might be due to large fixed costs and small marginal costs. Natural monopolies are common in public utilities such as gas, telecommunications, railways or electricity. The technology required to distribute natural gas can exhibit characteristics of a natural monopoly because it requires large investments. There are high fixed costs associated with building and maintaining the necessary infrastructure, namely the pipelines and distribution networks. However, once these pipelines are operating, the cost of providing more gas to an additional number of households is very limited. Regulatory measures are often implemented to mitigate the potential negative effects of monopoly power (e.g., excessive prices) and guarantee a balance between efficiency and consumer welfare. Even though regulation may be needed to discipline natural monopoly firms, there are, nonetheless, cases where natural monopolies can be contested and thus some form of competition may exist.

Viscusi, K., Harrington, J., and Vernon J. (2005). *Economics of Regulation and Antitrust*, 4th ed. MIT Press.

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If we existed in world that functioned in accordance with the perfect competition paradigm, there would be little need for [regulation]. All markets would consist of a large number of sellers of a product, and consumers would be fully informed of the product's implications. Moreover, there would be no externalities present in this idealized economy, as all effects would be internalized by the buyers and sellers of a particular product.

Unfortunately, economic reality seldom adheres very closely to the textbook model of perfect competition. Many industries are dominated by a small number of firms. In some instances, principally the public utilities, there may even be a monopoly. Consumers who use hazardous products and workers who accept risky employment may not fully understand the consequences of their actions. There are also widespread externalities that affect the air we breathe, the water we drink, and the viability of the planet for future generations . . ..

The major concern with monopoly and similar kinds of concentration is not that being big is necessarily undesirable. However, because of the control over the price exerted by a monopoly, there are economic efficiency losses to society. Product quality and diversity may also be affected . . ..

Recent research has greatly changed how we think about monopolies. For example, one major consideration is not simply how big a firm currently is and what its current market influence is, but rather the extent to which there is a possible entry from a competitor. If firms fear the prospect of such entry, which has been characterized through the theory of contestable markets, then the behavior of a monopolist will be influenced in a manner that will promote more responsible behavior.

One of the reasons concentrated industries emerge is that some firms may have exclusive rights to some invention or may have been responsible for a technological change that has transformed the industry. Coca-Cola and Pepsi Cola are much more successful soft drinks than their generic counterparts because of their perceived superior taste. If their formulas were public and could be generally replicated, then their market influence would wane considerably . . .

Economic Regulation

In many contexts where natural monopolies have emerged, for reasons of economic efficiency it is desirable to have a monopolistic market structure. Nevertheless, these economic giants must be tamed so that they will not charge excessive prices. We do not wish to incur all of the efficiency and equity problems that arise as a result of a monopoly. Prominent examples include public utilities. It does not make sense to have a large number of small firms providing households with electricity, providing public transportation systems . . .. However, we also do not wish to give single firms free reign in these markets because the interests of a monopoly will not best advance the interests of society as a whole.

1.1.2.2 Externalities

Externalities are the second source of market failure. 'Physical' externalities occur when the actions of consumers or producers result in costs and benefits that are not 'internalised', that is, they are not reflected in the cost and benefit of products and are not considered by the economic agent causing them. Consequently, market outcomes are distorted and inefficient. As Haucap and Schwalbe explain, these costs and benefits are 'external' to the market in a way that they are not reflected in market prices. Externalities can be positive or negative. For example, the production of chemicals or clothing may cause air and water pollution, which – in the absence of relevant laws and regulations – cause negative externalities. Without regulation, producers of these industries do not have an incentive to strive for optimal levels of pollution. An example of a positive externality is the investment in research and development (R&D). When it produces new knowledge, other firms may draw on them to produce other goods, even though they did not contribute to this initial investment. Also positive externalities may require regulatory intervention (e.g., patents): when there is little reward for investing in R&D, the market may underfund it.

Haucap, J., and Schwalbe, U. (2011). 'Economic Principles of State Aid Control'. DICE Discussion Paper No. 17, 7, https://d-nb.info/1012494764/34.

External effects are thus a matter of damaging or favouring otherwise uninvolved third parties. External effects are a direct result of ill-defined or definable and enforceable rights of disposal so that there is no compensation for the damage or favouritism. Negative external effects are best known from environmental policy. For example, harmful emissions that occur during a production process can cause damage to the residents' health or may require other companies to install costly filter systems. If the persons suffering from environmental pollution do not have assertive ownership rights of the 'good' environment, it will not be possible for them to prevent the causal agent from emitting pollutant emissions or to charge the causal agent with the costs for the environmental pollution (external costs). This lack of inclusion of external costs in the market-based pricing mechanism (lack of internalization) results in excessive pollution. An example of such negative external effects are the CO2 emissions that occur in the course of power production (especially coal and gas-fired power plants), as long as external effects are not internalized through taxes or tradable certificates.

1.1.2.3 Asymmetric Information

Information problems, namely the asymmetric distribution of information between market sides (supply and demand), are important causes of market failure. We should distinguish between incomplete and imperfect information: incomplete information exists when an economic agent does not have enough information about a transaction. This occurs typically before an economic transaction takes place. Imperfect information refers more generally to situations where information is not accurate or symmetrically distributed. Both concepts highlight the complexities of making decisions under conditions of information asymmetry. Consequently, the better-informed side of the market may exploit its position opportunistically, leading to inefficient market outcomes. In such cases, the necessity for regulation arises to correct these information imbalances and ensure fair and efficient market functioning. Haucap and Schwalbe (2011: 9–10) illustrate this cause for market failure with the consumer credit market:

The suppliers of credits do not have full knowledge of the exact default risk of each credit consumer. Consequently, they will adjust their interest on credits (the price of the credit) to the estimated average default risk. Consumers with low individual default risk (so-called good risks) will view this price as too high and choose not to borrow money. Consumers with above-average risks (so-called bad risks) benefit from what they perceive as comparatively cheap prices. The systematic crowding out of the good risks by the bad (negative selection) can in extreme cases lead to market failure, as utilizing transactions remain absent.

> With respect to the raising of capital for small and medium-sized enterprises in particular, it is assumed that significant information asymmetries exist, which can cause market failure. For both venture capital markets and private granting of credit by banks, it is estimated that the suppliers of capital systematically overestimate the default risk of credits to this group and therefore set the price for raising capital too high. As a result, raising capital is made more difficult for small and medium-sized enterprises in comparison to larger companies, so that they suffer significant competitive disadvantages. In order to compensate for these competitive disadvantages, the public sector often grants concessional credits to small and medium-sized businesses. Due to the selective nature of this preferential treatment, these credits have state aid character. Therefore, prior to state intervention (e.g., through a favourable granting of credit), it should always be examined whether or not protective measures emerge on the market itself that can prevent market failure. Possible protective measures are thereby an effective screening or signalling, which reduce the dangers of moral hazard and adverse selection.

Adverse selection and moral hazard are both concepts related to information asymmetry in transactions. Adverse selection may take place when one party in a transaction has more information than the other and takes advantage of this information to make decisions that negatively impact the less-informed party. This often happens before the transaction takes place.

The insurance industry, which tends to be highly regulated, provides insights into how adverse selection occurs and why regulation may be needed. Many of us become ill and have accidents that can affect our capacity to work. Insurance is important to guarantee that we are assisted when in need and high costs are covered. However, not everyone will voluntarily purchase insurance. Instead, those who are more likely to become ill will buy insurance and the healthiest among us may prefer to be optimistic and 'hope for the best'. In some countries, the costs of health insurance vary depending on the individual's risk to become ill such as the existence of pre-existing health conditions. In other countries, no such price discrimination exists and health-care costs are calculated in proportion to one's income. This can generate an adverse selection problem if an insurance company only has consumers who are likely to become ill. As Varian explains, this is a well-known scenario that arises when products of different qualities are sold at a single price because buyers or sellers are not sufficiently informed to determine the true quality at the time of the purchase. That is, too much of the low-quality product and too little of the high-quality product would be sold in the marketplace. When all individuals purchase insurance, there is a social gain since the pooling of many individuals' risks reduces the total risk. In other words, when many healthy individuals purchase health insurance (and not only the ones with health preconditions), there is a better distribution of risk.

The extract also discusses moral hazard, which arises when one party, after entering into a transaction, has an incentive to take risks or behave in a way

that the other party cannot fully anticipate or control. This occurs when economic actors have an incentive to expose themselves to a risk because they do not bear the full consequences of the negative effects of their actions (see also Chapter 12).

Varian, H. R. (2009). *Intermediate Microeconomic: A Modern Approach*, 8th ed. W. W. Norton & Company.

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Adverse Selection

Suppose that an insurance company wants to offer insurance for bicycle theft. They do a careful market survey and find that the incident of theft varies widely across communities. In some areas there is a high probability that a bicycle will be stolen, and in other areas thefts are quite rare. Suppose that the insurance company decides to offer the insurance based on the average theft rate. What do you think will happen?

Answer: the insurance company is likely to go broke quickly! Think about it. Who is going to buy the insurance at the average rate? Not the people in the safe communities – they don't need much insurance anyway. Instead the people in the communities with a high incidence of theft will want the insurance – they're the ones who need it. But this means that the insurance claims will mostly be made by the consumers who live in the high-risk areas. Rates based on the average probability of theft will be a misleading indication of the actual experience of claims filed with the insurance company. The insurance company will not get an unbiased selection of customers; rather they will get an adverse selection. In fact the term 'adverse selection' was first used in the insurance industry to describe just this sort of problem.

It follows that in order to break even the insurance company must base their rates on the 'worst-case' forecasts and that consumers with a low, but not negligible, risk of bicycle theft will be unwilling to purchase the resulting high-priced insurance . . ..

Moral Hazard

Consider the bicycle-theft insurance market again and suppose for simplicity that all of the consumers live in areas with identical probabilities of theft, so that there is no problem of adverse selection. On the other hand, the probability of theft may be affected by the actions taken by the bicycle owners.

For example, if the bicycle owners don't bother to lock their bikes or use only a flimsy lock, the bicycle is much more likely to be stolen than if they use a secure lock. Similar examples arise in other sorts of insurance. In the case of health insurance, for example, the consumers are less likely to need the insurance if they take actions associated with a healthy lifestyle . . ..

When it sets its rates the insurance company has to take into account the incentives that the consumers have to take an appropriate amount of care. If no insurance is available consumers have an incentive to take the maximum

possible amount of care. If it is impossible to buy bicycle-theft insurance, then all bicyclists would use large expensive locks. In this case the individual bears the full cost of his actions and accordingly he wants to 'invest' in taking care until the marginal benefit from more care just equals the marginal cost of doing so.

But if a consumer can purchase bicycle insurance, then the cost inflicted on the individual of having his bicycle stolen is much less. After all, if the bicycle is stolen then the person simply has to report it to the insurance company and he will get insurance money to replace it. In the extreme case, where the insurance company completely reimburses the individual for the theft of his bicycle, the individual has no incentive to take care at all. This lack of incentive to take care is called moral hazard.

Note the tradeoff involved: too little insurance means that people bear a lot of risk, too much insurance means that people will take inadequate care. If the amount of care is observable, then there is no problem. The insurance company can base its rates on the amount of care taken. In real life it is common for insurance companies to give different rates to businesses that have a fire sprinkler system in their building, or to charge smokers different rates than nonsmokers for health insurance. In these cases the insurance firm attempts to discriminate among users depending on the choices they have made that influence the probability of damage.

But insurance companies can't observe all the relevant actions of those they insure. Therefore we will have the tradeoff described above: full insurance means too little care will be undertaken because the individuals don't face the full costs of their actions. What does this imply about the types of insurance contracts that will be offered? In general, the insurance companies will not want to offer the consumers 'complete' insurance. They will always want the consumer to face some part of the risk. This is why most insurance policies include a 'deductible', an amount that the insured party has to pay in any claim.

Besides the regulatory instruments (see Chapters 6–8), there are also various ways through which economic agents address the problem of asymmetric information. For instance, market signaling is a process through which sellers send signals to buyers conveying information about product quality. A dealer of second-hand cars may, for example, offer a one-year warranty to signal that the car is not 'a lemon'.

1.1.2.4 Public Goods

Public goods have two main characteristics: they are non-rivalrous and non-exclusive in their consumption. Non-rivalry can be detected if for any given level of production, the marginal cost of providing it to an additional consumer is zero. For most goods that are provided by private firms, the marginal cost of production is positive, even when it is small. There are cases though where additional consumers of public goods do not add to the cost. For example, once a highway is built and there is no congestion, additional cars driving on it cost zero. Also, virtual goods such as software and information content on the Internet are non-rival in consumption.

Public goods are also non-exclusive, that is, people – including consumers who are unwilling to pay for these goods – cannot de facto be excluded from their consumption. Public goods are thus commodities or services that are available to the whole collectively. National defense is an example of a non-exclusive good because once a country has invested in its national defense, all citizens can be protected.

Recently, the risk of depletion of public goods taking the form of 'common pool resources', such as the oceans and clean air, have sparked considerable interest. Oceans were traditionally regarded non-excludable and non-rivalrous. However, overgrazing also exists in the form of overfishing. Hardin (1968) famously coined this phenomenon as the 'tragedy of the commons' employing the metaphor of a grazing commons, a pasture that was open to all and from which no-one could be excluded. Each herder receives a direct benefit from grazing their animals on the commons but only bears a share of the cost resulting from overgrazing. Accordingly, each herder, acting rationally, will graze as many animals as possible, without regard to the degradation thereby caused.

The tragedy of the commons flows from unlimited access to public goods, prompting Hardin to suggest the privatisation of these goods as well as central government regulation to introduce an element of excludability. Examples are fisheries quotas, government ownership and the restriction of access through auctions of special licenses.

Nobel prize winner Elinor Ostrom partly challenged Hardin's perspective, demonstrating first that incentive structures are more varied and multifaceted than conventional analysis suggested and, second, that the excludability of the commons is more complex than Hardin had argued. It depends, among other factors, on the enforceability of rules and property rights. Factors such as whether the resource is stationary (e.g., a forest) or mobile (e.g., river fisheries), and whether it is challenging to monitor (e.g., ground water), affect the management strategies adopted by communities. Through extensive global case studies on local commons management, Ostrom demonstrated how resource-user communities have, organically and spontaneously, developed effective exclusion methods without relying on external regulation.

Despite Ostrom's legacy, Hardin's arguments advocating for regulation in preventing the tragedy of the commons still hold merit.

1.1.3 Economic Regulation and Social Regulation

The correction of market failures calls for specific types of regulation. The extract below distinguishes between two types of regulation: economic and social regulation. It defines economic regulation as 'government-imposed restrictions on firm decisions over price, quantity, and entry and exit'. While regulation is nowadays no longer limited to state-issued regulations, most economic regulatory interventions on price, entry and exit requirements are

issued by public regulators. Economic regulation may also regulate entry of certain professions in order to remedy information problems and guarantee standardised minimum levels of qualification (e.g., professional licenses for medical doctors, see also Chapter 9).

Since the 1970s, regulation has expanded to the social realm as society recognised that markets and their regulation did not suffice to ensure a set of minima such as clean water, a safe working environment, and a healthy environment. As the extract mentions, growing awareness for the effects of climate change have reinforced the tendency to adopt more social regulation. Social regulation addresses various market failures, including negative externalities affecting the environment, health and safety. Examples of social regulation encompass mandates such as wearing protective gear on construction sites.

Viscusi, W., Kip, V., Harrington, J. M., Harrington Jr., J. E. (2005). *Economics of Regulation and Antitrust*, 4th ed. MIT Press.

357–358

Economic regulation typically refers to government-imposed restrictions on firm decisions over price, quantity, and entry and exit. Economic regulation is to be contrasted with social regulation . . ..

Although economic regulation can encompass restrictions on a wide array of firm decisions, the three key decision variables controlled by regulation are price, quantity, and the number of firms. Less frequently controlled variables include product quality, advertising, and investment

Control of Price

Price regulation may specify a particular price that firms must charge, or may instead restrict firms to setting price within some range. If the concern of the government is with a regulated monopolist setting price too high, regulation is apt to specify a maximum price that can be charged . . ..

Control of Quantity

Restrictions on the quantity of a product or a service that is sold may be used either with or without price regulation. From the 1930s up until around 1970s, many oil-producing states, among them Texas and Oklahoma, placed maximum production limits on crude oil production. Although quantity was controlled by the state, price was determined nationally or globally (though obviously these quantity controls influenced the market price . . ..

Control of Entry and Exit

[T]he two critical variables that regulators have controlled are price and the number of firms, the latter through restrictions on entry and exit . . .. Entry may be regulated at several levels. First, entry by new firms may be controlled, as is typically done in the regulation of several public utilities . . .. In addition to

> controlling entry by new firms, a regulatory agency may also control entry by existing regulated firms . . .. The former case is exemplified by the airline and trucking regulation. Their respective regulatory agencies made it very difficult for an existing firm to enter a geographic market already served by another regulated firm . . ..
>
> A basis for exit regulation is that regulation strives to have services provided to a wider set of consumers than would be true in a free market. Attaining this goal may entail regulated firms serving unprofitable markets, which creates a need for regulations that forbid a regulated firm from abandoning a market without regulatory approval . . ..
>
> **Control of Other Variables**
> A regulatory agency may specify minimum standards for reliability of a service. If an electric utility has regular blackouts, the regulatory agency is likely to intervene and require an increase in capacity in order to improve service reliability . . ..
>
> **Social Regulation**
> [E]nvironmental and other social regulations have become an increasingly prominent part of the regulatory mix . . .. [T]he recent emergence of concerns such as global climate change has increased the extent of this form of regulation. There is little doubt that actual market failures exist in the context of social regulation. In many cases, such as air pollution, no markets exist at all for the commodity being produced, and there is no market-based compensation of the victims of pollution. Markets could never suffice in instances such as this.

Economic and social regulation often coexist and are used together to address different market failures.

1.2 Transaction Economics

Transaction economics, developed mainly by Williamson (1975, 1979), studies the costs of transactions within an economic system, explaining that transaction costs are pervasive and exist in every economic transaction. Williamson defined this concept as the costs incurred in the process of planning, executing and enforcing an exchange or transaction, including information search and acquisition, negotiation and contracting, monitoring and enforcement and the costs of adapting to unforeseen circumstances. The starting point for studying transaction costs is, nonetheless, Coase (1937).

In 'The Nature of the Firm', Coase (1937) highlighted that firms emerge when the cost of coordinating through the market (transaction costs) surpasses the cost of coordinating within a hierarchical structure (the firm). Later, in 'The Problem of Social Cost' (1960), Coase developed his Theorem, asserting that, under specific conditions, private parties can autonomously negotiate and achieve efficient resolutions to externalities without requiring

government intervention, provided well-defined property rights exist. In essence, the Coase Theorem challenges the notion that complete competitive markets are the sole path to efficiency. Rather, it posits that in cases of market inefficiency, individuals can, under certain conditions, arrange and negotiate their way towards efficiency. Coase argued that, with well-defined property rights and minimal transaction costs – those incurred during exchanges like buying or selling – parties have the capacity to negotiate an economically efficient allocation of externalities, regardless of the initial assignment of property rights.

As explained in the extract, the Coase Theorem has regulatory implications, asserting that, in many instances, private bargaining may be preferable to regulatory intervention (see also Chapter 4).

Pacces, A. M., and Van den Bergh, Roger J. (2012). 'An Introduction to the Law and Economics of Regulation in Pacces'. In A. M. and R. J. Van den Bergh (eds.), 'Regulation and Economics' in *Encyclopedia of Law and Economics*, 2nd ed. Elgar, 1–22.

5–6

Traditionally, in economics, [market failures] are considered sufficient ground for legal intervention. However, since Coase (1960), this logic has been put into question. The sense of Coase's critique to the neoclassical ... treatment of market failures is threefold. First, in a frictionless world, market failures would be self-correcting only on condition that property rights are well specified and contracts are enforceable at no cost. This is the famous Coase Theorem that holds in a world of zero transaction costs. The second point is that, when transaction costs are positive as it happens to be the case in most of the real world, legal devices other than regulation may score better in achieving the efficient outcome. Liability, which in some situations is the best way to cope with negative externalities, is the most prominent alternative. The third issue is that regulation is not immune from the problem of transaction costs. Inefficiencies in the design and the implementation of corrective measures due to high transaction costs may imply that society will be better off in the absence of regulation.

One important lesson from the Coasean approach to market failures is that the latter are not sufficient to justify regulation. As Ogus (1994) puts it, the case for regulation rests on the association of market failures with private law failures. For instance, it may not be necessary to regulate, beyond what contract law already does, the duty of the more informed party to a contract to inform the counterparty. But such regulation may well be justified when the potential harm of misinformation is diffused and it is unlikely that the threat of civil liability will deter deception, as for instance in the case of adulterated food or securities fraud ....

A second important implication of Coase's approach to regulation is that, in some situations, the cure (regulation) may be worse than the disease (market failure). This depends on the problem of regulatory failure. The causes of

> regulatory failure are manifold, but at least two stand out. First, regulators do not have sufficient information about individuals' and firms' behaviour which makes it very difficult, if not impossible, for regulation to effectively improve on market outcomes, however flawed the latter may be .... [R]egulation is self-perpetuating exactly because of its unintended consequences. Faced with regulatory failure, uninformed regulators react by adding new regulations rather than by repealing the existing ones that have failed.

While in the real world (almost) all exchanges will have transaction costs, higher transaction costs can be expected when market actors have different interests and when there are many market actors willing to negotiate. This occurs when an individual (the principal or 'the boss') delegates tasks to another one (the agent). For example, principals can be individuals who appoint financial advisors to manage their wealth, acting for and on their behalf. The **principal-agent theory**, as Eisenhardt explains below, helps us grasp what happens when this delegation occurs, how risks are shared, and how conflicts may emerge (see also Chapter 12).

The key assumptions of the principal-agent theory are as follows: first, agents may have different preferences from their principal; second, agents may have different incentives from the principal because their rewards are different; third, agents may have information that is unavailable to the principal (and vice-versa). This last element – information asymmetries – is a central problem that makes it difficult for principals to monitor how agents execute the tasks they were given. These divergences often result in conflicts, which explains the need for regulation at many levels such as monitoring, incentives, risk sharing, information sharing and accountability. In the case of regulation, regulators are the agents of the citizens they serve. However, as Chapters 4 and 12 explain, the alignment of interests between regulators and regulatees is complex and regulators can often fall short of the regulatees' expectations.

Eisenhardt, K. M. (1989). 'Agency Theory: An Assessment and Review'. *The Academy of Management Review*, 14(1), 57–74, https://doi.org/10.2307/258191.

> Specifically, agency theory is directed at the ubiquitous agency relationship, in which one party (the principal) delegates work to another (the agent), who performs that work. Agency theory attempts to describe this relationship using the metaphor of a contract. Agency theory is concerned with resolving two problems that can occur in agency relationships. The first is the agency problem that arises when (a) the desires or goals of the principal and agent conflict and (b) it is difficult or expensive for the principal to verify what the agent is actually doing. The problem here is that the principal cannot verify that the agent has behaved appropriately. The second is the problem of risk sharing that arises when the principal and agent have different attitudes toward risk. The problem here is that the principal and the agent may prefer different actions because of the different risk preferences. Because the unit of analysis is the contract governing the relationship between the principal and the agent, the focus of the theory is on determining the most efficient contract governing the principal-

> agent relationship given assumptions about people (e.g., self-interest, bounded rationality, risk aversion), organizations (e.g., goal conflict among members), and information (e.g., information is a commodity which can be purchased). Specifically, the question becomes: Is a behavior-oriented contract (e.g., salaries, hierarchical governance) more efficient than an outcome-oriented contract (e.g., commissions, stock options, transfer of property rights, market governance)? . . . The agency structure is applicable in a variety of settings, ranging from macro-level issues such as regulatory policy to microlevel dyad phenomena such as blame, impression management, lying, and other expressions of self- interest.

Over the last half century, rational choice theory has been disputed by behavioural economics, as Section 1.3 shows.

1.3 Introduction to Behavioural Economics

Behavioural economics, pioneered by Amos Tversky and Daniel Kahneman, draws primarily on experimental and interdisciplinary studies. Behavioural economics challenges the assumption that individuals always behave rationally and is devoted to studying how consumers actually make choices. This subfield of economics does not seek to replace the standard framework of neoclassical economics. Instead, it extends rational choice and equilibrium models by providing them with more realistic psychological foundations. Behavioural economics studies mental accounting and how people are strongly influenced by how choices are presented to them. The framing of a choice can often result in irrational choices. For instance, consumers may be more likely to pay $250 for a pair of faded or slightly torn jeans of the exact same brand sold in an exclusive store rather than at a thrift store or a vintage clothing platform (e.g., Vinted). While at times this may seem rational, in many cases, this type of decisions will be the result of framing or biases.

1.3.1 Cognitive Biases

Individuals in the real world act very differently from the model of the 'homo economicus', that is, the self-interested individual who makes rational decisions for utility maximisation. Under conditions of uncertainty and conflict, human decision-making is guided instead by framing or, more accurately, heuristics and biases. Humans are thus not as rational as neoclassical economics modelled them. Sunstein, Jolls and Thaler discuss below our limited rationality, controlling emotions (about fairness or other values), and how this justifies irrational choices, mistakes and the use of mental shortcuts. Individuals also have bounded willpower, which translates itself in poor health or financial choices (e.g., preferring chocolate to fruit as a snack).

Cognitive biases are important to understand why regulation is needed (see Chapter 4). To illustrate, *hyperbolic discounting* or present bias is our inclination to choose immediate rewards (e.g., convenient fast-food takeaway) over

rewards that come later in the future (e.g., healthy body). This is also known as myopic decisions in neoclassical economics. *Cognitive dissonance* refers to a state of discomfort caused by contradictory beliefs and actions. It explains why humans tend to have a confirmation bias, that is, a tendency to notice, focus on and accept better evidence that fits within their existing beliefs. Cognitive biases often intensify in challenging scarcity circumstances associated with poverty, such as financial instability. These conditions impact cognitive resources and decision-making abilities. Payday loans take advantage of the irrational decisions stemming from this scarcity mindset.

Sunstein, C. R., Jolls C., Thaler, R. H. (1998). 'A Behavioral Approach to Law and Economics'. *Stanford Law Review*, 50, 1471–1550.

1476–1479

How do 'real people' differ from homo economicus? We will describe the differences by stressing three important 'bounds' on human behavior, bounds that draw into question the central ideas of utility maximization, stable preferences, rational expectations, and optimal processing of information. People can be said to display bounded rationality, bounded willpower, and bounded self-interest. All three bounds are well documented in the literature of other social sciences, but they are relatively unexplored in economics (although, as we noted at the outset, this has begun to change). Each of these bounds represents a significant way in which most people depart from the standard eco nomic model . . ..

Bounded Rationality

Bounded rationality, an idea first introduced by Herbert Simon, refers to the obvious fact that human cognitive abilities are not infinite. We have limited computational skills and seriously flawed memories. People can respond sensibly to these failings; thus it might be said that people sometimes respond rationally to their own cognitive limitations, minimizing the sum of decision costs and error costs. To deal with limited memories we make lists. To deal with limited brain power and time we use mental shortcuts and rules of thumb. But even with these remedies, and in some cases because of these remedies, human behavior differs in systematic ways from that predicted by the standard economic model of unbounded rationality. Even when the use of mental shortcuts is rational, it can produce predictable mistakes. The departures from the standard model can be divided into two categories: judgment and decisionmaking. Actual judgments show systematic departures from models of unbiased forecasts, and actual decisions often violate the axioms of expected utility theory.

A major source of differences between actual judgments and unbiased forecasts is the use of rules of thumb. . .such as the availability heuristic – in which the frequency of some event is estimated by judging how easy it is to recall other instances of this type (how "available" such instances are) – lead us to erroneous conclusions. People tend to conclude, for example, that the probability of an event (such as a car accident) is greater if they have recently witnessed an occurrence of that event than if they have not. What is especially important in

the work of Kahneman and Tversky is that it shows that shortcuts and rules of thumb are predictable. While the heuristics are useful on average (which explains how they become adopted), they lead to errors in particular circumstances. This means that someone using such a rule of thumb may be behaving rationally in the sense of economizing on thinking time, but such a person will nonetheless make forecasts that are different from those that emerge from the standard rational choice model . . ..

Bounded Willpower

In addition to bounded rationality, people often display bounded willpower. This term refers to the fact that human beings often take actions that they know to be in conflict with their own long-term interests. Most smokers say they would prefer not to smoke, and many pay money to join a program or obtain a drug that will help them quit. As with bounded rationality, many people recognize that they have bounded willpower and take steps to mitigate its effects. They join a pension plan or 'Christmas Club' (a special savings arrangement under which funds can be withdrawn only around the holidays) to prevent undersaving, and they don't keep tempting desserts around the house when trying to diet . . ..

Bounded Self-interest

Self-interest is bounded in a much broader range of settings than conventional economics assumes, and the bound operates in ways different from what the conventional understanding suggests. In many market and bargaining settings (as opposed to nonmarket settings such as bequest decisions), people care about being treated fairly and want to treat others fairly if those others are themselves behaving fairly. As a result of these concerns, the agents in a behavioral economic model are both nicer and (when they are not treated fairly) more spiteful than the agents postulated by neoclassical theory. Formal models have been used to show how people deal with both fairness and unfairness; we will draw on those models here.

1.3.2 Cognitive Biases and Behavioral Design

Regulators have recently started to draw on behavioural insights to justify the need for regulatory interventions that prevent the exploitation of people's cognitive biases by others and protect individuals from their own fallibility (for example, the use of odd pricing such as $0.99). This has inspired paternalistic interventions that interfere with a person's freedom in order to further their own good. Examples of paternalism include regulatory measures that (intend to) protect vulnerable consumers, restrictions on the legal capacity of minors and 'sin taxes' on tobacco and other unhealthy products. In addition to paternalism, nudging and choice architecture (see also Chapters 6 and 7) are other approaches to regulation that seek to understand and correct cognitive systems besides addressing information asymmetries. As Bohnet explains, behavioural insights can also be employed to improve gender equality, namely

in hiring. Discrimination is not always done on purpose but it results from implicit biases, stereotypes and how certain professions and sectors are framed. Not everyone is aware of their biases (e.g., bias to hire a candidate who is similar in terms of physical appearance and preferences) and thus regulation can offer valuable corrections.

Bohnet, I. (2016). *What Works: Gender Equality by Design*. Harvard University Press.

1–7

As late as 1970, only 5 percent of musicians performing in the top five orchestras in the United States were women. Today, women compose more than 35 percent of the most acclaimed orchestras, and they play great music. This did not happen by chance. Rather, it required the introduction of blind auditions. The Boston Symphony Orchestra was the first to ask musicians to audition behind a screen, and in the 1970s and 1980s most other major orchestras followed suit. When they did so, usually in preliminary rounds, it raised the likelihood that a female musician would advance by 50 percent and substantially increased the proportion of women hired.

In theory, an orchestra director cares about the sounds coming out of the bassoon, the flute, and the trumpet, not the ethnicity or sex of the person playing the instrument. In practice, the Vienna Philharmonic, for example, admitted its first female player in 1997. Not so long ago. Orchestra directors and selection committees were quite comfortable with all- male, all- white orchestras and likely not aware of their biases. To change this, no great technological feat was required, just awareness, a curtain, and a decision. Or, more precisely, a design decision. A simple curtain doubled the talent pool, creating amazing music and transforming what orchestras look like . . ..

Stereotypes serve as heuristics – rules of thumb – that allow us to process information more easily, but they are often inaccurate. What is worse, stereotypes describing how we believe the world to be often turn into prescriptions for what the world should be. Much psychological research shows that we cannot help but put people (and other observations) into categories. It rarely is a conscious thought process that informs our thinking about demographic groups. Rather, when we learn the sex of a person, gender biases are automatically activated, leading to unintentional and implicit discrimination.

Through behavioral design we can move the needle toward creating equal opportunities for female musicians, for male teachers, and for everyone else . . .. Behavioral design offers an additional instrument for our collective toolbox to promote change; it complements other approaches focusing, for example, on equal rights, education, health, agency, or on policies making work and family compatible.

Conclusion

This chapter offered a primer on the key economic concepts that have shaped the theories, methodologies and instruments of regulation. Neoclassical economics explains and predicts human behaviour under a set of assumptions: first, individuals and firms are rational; second, they strive to maximise their utility or profits; third, they make decisions on the grounds of full and relevant information. We explained different economic concepts such as efficiency and transaction costs, which we will apply in other chapters.

Discussion Questions

1. Discuss the difference between productive efficiency, allocative efficiency and dynamic efficiency.
2. What are the key sources of informational market failures?
3. Explain how the insurance industry addresses the adverse selection and moral hazard problems.
4. Provide common examples from your daily life where you see some of the features of the principal-agent model. How can this model be used to understand the conflicts that arise in these relationships?
5. How do Hardin and Ostrom differ in the way they approach the tragedy of the commons?
6. What is behavioural economics?
7. What sets behavioural economics apart from standard economics analysis?
8. How does poverty affect the ability of individuals to maximise their utility? Can and should regulators correct this suboptimal conduct? (You may wish to return to this question, after having read Chapters 4 and 5).