

This chapter covers ...

- the importance of property rights.
- the different forms of markets.
- the importance of “money” as a barter good.
- basic terminology that is useful in analyzing markets.
- where economics and law meet.

3.1 General Remarks

The chapter on the theory of comparative advantage has revealed that the problem of scarcity can be alleviated, if individuals are willing to specialize according to their comparative advantages and then find a way to allocate goods and services that is mutually beneficial. I have further argued that this process cannot be expected to unfold without an adequate institutional “frame” within which specialization and exchange can take place. A *market* is one such institution; it is the most important institution that fosters specialization and exchange and is the foundation on which modern capitalist societies are built. Informally speaking, a market is a framework that allows potential buyers and sellers to exchange goods, services, and information. 

In order to make these transactions possible, a market relies on *private property rights* and *contract law*. Property rights define individual spheres of control over objects and they allow individuals to determine in which ways these objects shall be used and thus create a distinction between ‘mine’ and ‘yours.’ Without such a distinction, it would be impossible to establish markets and trade, because it would be unclear who has the right to control and use these objects. Property rights can be absolute, giving the owner of an object the freedom to use it in any way she wants, but in most societies there are socially agreed upon restrictions on the use of one’s 


property. Restrictions may occur, if some uses impede on the well-being of others or are in conflict with moral values.

✍ An important example of objects for which many countries have constrained the rights of the owner is the ownership of land, which is called real estate or immovable property. Land development, types of uses and the architecture of buildings are subject to constraints and regulations, and some countries limit individual rights even further by preventing them from using real estate in the way most preferred by the owner (for example by construing the right to abandon one's buildings). Therefore, it is more adequate to think of property rights as those user rights that society leaves to the formal owner. The technical term for these rights is *residual control rights*.

Φ **Digression 7. Property Rights Enforcement**

It is vital to distinguish between the mutual recognition and the enforcement of property rights. People are used to thinking of property-rights enforcement as a centralized activity delegated to “the state.” An important proponent of this view was Max Weber (1988), who observed that the modern state has monopolized the legitimate use of force. According to this point of view, the state provides for public enforcement and, with a few exceptions like self-help, limits private enforcement of property rights. This has not always been the case. The private enforcement of rights has been of considerable importance historically, for example in late medieval Europe. The development of the code of conduct called “Lex Mercatoria,” in the 11th and 12th century, is seen as one of the key factors for the economic success of Europe, which arched over into the Renaissance. This helped to overcome the limited possibilities of centralized law enforcement in a politically fragmented Europe. According to Berman (1983), “[t]his legal system’s rules were privately produced, privately adjudicated, and privately enforced.” The system became effective exactly because medieval Europe was plagued by a maze of fragmented states, whose rulers more closely resembled self-interested elites. In certain respects, the situation in medieval Europe looks similar to the situation of the globalized economy of today, where multinational firms are confronted with nation-states that lack a centralized agency, which enforces contracts.

ℒ ✍ The fact that markets rely on property rights implies that every transaction on a market has a “physical” and a “legal” side. The physical side of a transaction is the exchange of goods, services, or information (I will henceforth speak of goods and services, implicitly assuming that information can be interpreted as a specific kind of service) whereas, from a legal perspective, a transaction is an exchange of rights. In order to be able to exchange rights, it is necessary to specify the conditions under which such a transaction is binding. An exchange of rights is specified in a *contract* and the rules that apply to the establishment of such contracts are specified in a society’s *contract law*.

Digression 8. Self Ownership

An often bypassed constituent element of private property is *self-ownership*, which is an important virtue and achievement of modern bourgeois society. Self-ownership excludes serfdom and slavery and is a necessary prerequisite for ownership rights over objects in the outside world. It is also important for the establishment of transactions of services like, for example, the time and expertise a person offers on labor markets. Usually, a labor contract specifies the duties of the employer as well as of the employee. Self-ownership makes these contracts possible and, at the same time, defines limits to contractual freedom, because it, for example, prohibits a person from voluntarily selling herself into slavery.

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The very brief discussion of the institutional prerequisites for a market economy – private property as residual control rights plus contract law – reveals that there is a close relationship between the legal and economic aspects of the study of markets. The civil law of a society implicitly defines the extent to which markets can develop and what they can achieve, while the economic analysis of the functioning of markets can inform the legal scholar about the likely consequences of legal rules. The importance of the interaction between a legal and an economic perspective is reflected in the fact that a whole field of analysis called “Law and Economics” has emerged, which is devoted to the analysis of the relationship between legal rules, individual behavior, and social outcomes.

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Assume that a society has established a system of private property rights, which assigns residual rights of control over objects to individuals and contract laws, which specify the conditions under which the ownership of rights can be transferred. The individuals can now start to exchange these rights, given the rules specified in contract law. The rights-based approach to markets is straightforward but, at the same time, may be a little too abstract to define a good or service as any (bundle of) right(s) an individual may be interested in buying or selling. These rights can be anything from the right to eat an apple to the right to acquire a share in a company twelve months from now, if the share price is above a certain threshold.

Basically, there are two ways to establish trade. In a *barter economy*, goods and services are exchanged for other goods and services, like two apples for a loaf of bread. Most modern societies, however, rely on an abstract medium of exchange: money. At this point, it is not necessary to explicitly distinguish between economies that barter and economies that use money as a medium of exchange, but the following digression discusses the “nature” of money:

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Digression 9. Money

One of humanity’s major achievements has been the invention of an abstract medium of exchange for facilitating the exchange of goods or trade. This medium of exchange is called money. Money is traditionally regarded as

having three functions: it acts as a medium of exchange, a unit of accounting and as a means of storing value.

Given that most people grew up in societies where money is almost as pervasive as the air we breathe, it is easy to oversee these three really peculiar aspects of money. First, compared to a barter economy where transactions can only take place if the supply and demand of two individuals perfectly align (which is called the “double coincidence of want”), the use of money dramatically facilitates this exchange, because it no longer depends on this coincidence.

Second, given that money has no intrinsic value and merely represents an abstract promise to be convertible into directly useful goods and services in the future, it is a convention in the sense of Searle, see Chap. 2. Thus, its invention relies on abstract thinking and trust (it most likely evolved from debt certificates) and the historic development of money shows people’s increasing ability of thinking in abstract ways about the use and nature of money. The step from gold and silver coins (used by the Lydian’s around 500-600 BC) to paper money (from the 7th century AD in China and the 13th century AD in Europe), and then from Banknotes backed by Gold (Bretton-Woods System) to unbacked money, and finally to a perfectly abstract unit of exchange in the digital age, show an increasingly abstract way of thinking.

Third, in opposition to directly useful goods and services, the value of money results from a social convention. Money has value only insofar as people are willing to accept it as a medium of exchange. This explains why the value of money, and of currencies, is inherently fragile, because the value of banknotes and coins (and, even worse, of purely abstract forms of money) drops to almost zero (which is an extreme form of inflation) as soon as people lose faith in its future value and start rejecting it as a medium of exchange, despite the fact that everyone would be better off, if money was accepted.

Assume that an exchange rate between goods and services, or a monetary price, exists. In the case of money, a person who is willing to give away (some of) her residual rights of control in exchange for the given price is called a *seller* of these rights (and the associated goods and services), while a person who is willing to acquire (some) residual rights of control from another person, in exchange for the given price, is called a *buyer*. The example of a barter economy, where one good is necessarily exchanged for another, makes it clear that a person is necessarily a buyer and a seller at the same time, because she has to give up apples for potatoes or *vice versa*. This reciprocity of supply and demand carries over to monetary economies, if one reminds oneself that money is an abstract promise to acquire goods and services in the future and, therefore, a bundle of rights. Thus, buying apples for money means that one person acquires control rights over apples (buyer) and the other gives up control rights over future consumption (seller). Hence, one should bear in mind that any transaction in a market is necessarily complemented by a transaction on some other market.

3.2 Taxonomy of Markets

The remainder of this book will take the existence of property rights and contract law as given and develop a taxonomy of different markets. Table 3.1 gives an overview of the most important market structures. It is common to distinguish supply and demand according to the number of buyers and sellers on a market. It is also customary to distinguish between one buyer or seller, a few buyers or sellers, and many buyers or sellers. This taxonomy defines nine prototypical market structures, each one with its own distinctive, functional logic. First of all, one should focus on the three market structures that will be analyzed in greater detail in the following chapters: polypoly, oligopoly, and monopoly.

A polypoly has many buyers and sellers of a homogenous good or service. Goods or services from different suppliers are called *homogenous*, if the potential buyers are not willing or able to distinguish between them and, therefore, consider them as perfectly interchangeable. The term “many” has a specific meaning in this context, as well. It refers to a situation where each buyer or seller considers her influence in the market so negligible that she does not have any influence on the market price. The buyers and sellers are therefore *price takers*, and the market is also called *perfectly competitive*. A market with perfect competition is the workhorse model for a lot of problems analyzed by economists, ranging from the determination of market prices, to the effects of taxes and to the determinants of international trade. In addition, this market is relatively easy to analyze, which is why this analysis of market economies starts with this case. Examples for markets that approximate perfect competition are:

- Some agrarian resources, like wheat, approximate perfect competition, because an international commodities market exists for these approximately homogenous resources, which implies a large number of producers (farmers) and buyers.
- The stock exchange is, in principle, also a good example for a competitive market, but one has to be cautious, because of institutional investors who can, generally, influence prices.

However, for reasons that will become apparent later on, not many markets can be adequately described as polypolistic. The reason why economics textbooks still focus on a market structure that is apparently unrealistic or not very common is because its simplicity allows one to understand fundamental properties of market transactions. Furthermore, it also acts as a reference point for more complicated markets. More realistic markets, like monopolies or oligopolies, are more complex to analyze but, fortunately, the additional complexity is relatively easy to digest

Table 3.1 Taxonomy of market structures

	Buyers		
Sellers	One	Few	Many
One	Bilateral monopoly	Restricted monopoly	Monopoly
Few	Restricted monopsony	Bilateral oligopoly	Oligopoly
Many	Monopsony	Oligopsony	Polypoly

because it is, in a sense, additive: the functioning of the most basal monopolistic market can be analyzed using the understanding derived from competitive markets, plus additional layers of complexity.

These additional layers of complexity exist because the seller on a monopolistic market understands that she is the only seller of a specific good or service, which gives her a certain power to influence prices. Hence, the assumption of price-taking behavior is no longer adequate and one has to understand how this additional factor influences supply and demand. The first known mention of a monopoly goes all the way back to Aristotle who, in his “Politics,” describes the market for olive presses as a monopoly. More recently, De Beers had a monopoly in raw diamonds before countries like Russia, Canada, and Australia emerged as alternative distributors of diamonds. Public utilities that maintain infrastructures like electricity, water, sewage, etc. usually also have regional monopolies.

✍ On the same note, the functioning of the most basic oligopolistic market can be analyzed using the understanding derived from monopolistic markets, plus yet another layer of complexity. With only a few suppliers, each of them has, in principle, some control over prices, but they have to take their competitors’ likely behavior into consideration. Such strategic considerations are not necessary in monopolistic markets, because there are no competitors. They are also obsolete in perfectly competitive markets, because no supplier is able to influence the market. This is no longer the case with a limited number of competitors, because the optimal behavior of one supplier, in general, depends on the behavior of her competitors. This situation is defined as *strategically interdependent* and an analysis of markets with strategically interdependent decisions will be the capstone of this introductory textbook. Formally, an oligopoly is a market where a limited number of suppliers sell homogenous goods. Here are some examples:

- The grocery market in Switzerland is dominated by Coop and Migros.
- The market for wireless telephone services in Switzerland is dominated by Swisscom, Sunrise, and Salt.
- The worldwide accountancy market is dominated by PriceWaterhouseCoopers, KPMG, Deloitte Touche Tohmatsu, and Ernst & Young.
- The worldwide aircraft market is dominated by Boeing and Airbus.

Bearing the increasing complexity of different market structures in mind, the structure of the following chapters is straightforward: they start with a relatively simple market structure that is easy to understand, continue with a market structure that better describes a lot of markets that one is confronted with on an almost daily basis and that is of moderate complexity, and finish with the most complex market structure.

The taxonomy in Table 3.1 encompasses not only three, but nine market structures. Even if I only explicitly cover the above-mentioned three in this introductory textbook, I will discuss the other structures’ peculiarities briefly.

Monopsonistic and oligopsonistic markets are mirror images of monopolistic and oligopolistic markets and the main insights that can be derived from the latter can also be applied to the former.

A bilateral monopoly, however, confronts one with a totally different situation, because both sides of the market possess some market power, which derives from the fact that the trading partner cannot fall back on some other identical alternative, if trade does not take place. Such a situation arises because manufacturers and suppliers often customize their production processes and products to the needs of their trading partners, with the result that the manufacturer cannot sell the tailored products at the same price to other trading partners and the trading partner has difficulties finding adequate substitutes on the market. Here are some additional examples:

- Collective bargaining agreements (CBAs) between labor unions and (especially large) companies or employers' associations,
- highly specialized scientists and their employers (e.g. pharmaceutical companies and their lead scientists; both would have difficulties finding adequate alternatives, at least in the short run),
- governments and some of their defense contractors (an extreme example is the market for nuclear-powered aircraft carriers, where the US government is the only buyer and Huntington Ingalls Industries is the only seller);
- marriage (think about it: dissolving a partnership is costly so, even if one thinks that one has found an even better match, one may decide not to dissolve it).

Analytically, the challenge lies in understanding the factors that influence the success of the resulting bilateral negotiations and the distribution of the potential gains from trade between the buyer and seller. The field of research that analyses these questions is called *bargaining theory*.

The three remaining market structures, bilateral oligopoly, restricted monopoly and restricted monopsony, are far less studied. The basic challenge in understanding the functioning of these markets, and the corresponding optimal strategies, is how varying degrees of competitiveness influence the bargaining power of a single buyer or seller. An example is the retail industry: historically, the supply side was concentrated and the demand side was rather competitive in the corresponding markets, but demand-side concentration greatly increased over the last forty years or so. The grocery sector in Germany is a case at hand and the trend towards concentration was reinforced by the formation of buyer groups. In 2014, the five largest buyer groups had a market share of more than 80%.

Another commonly analyzed market form, which does not appear in Table 3.1, is called *monopolistic competition*. The model of monopolistic competition blends elements from the monopoly with elements from the polypoly model. Basically, it is assumed that firms behave like monopolists and that firms can produce similar, but not identical, products. A good example is the market for sports-utility vehicles (SUVs), where each major car company sells its own variant of SUV. All of them are similar, but a lot of customers have their favorite brands. The model of monopolistic competition is very useful, if one is interested in determining the number of competitors that a market can sustain.

The above line of argumentation assumes that the number of buyers or sellers has an important influence on the functioning of a market and one will get a deeper understanding of this conjecture throughout the following chapters. However, there are two questions that should come to mind at the present stage. First, it is unclear what determines the market structure. Is it possible to organize markets for arbitrary goods and services at will, or are there underlying explanatory factors that determine whether a specific good or service is traded on a perfectly competitive or on a monopolistic market, or on a completely different one? Second, how many are “few” and how many are “many?” If the dividing line between few and many is important for the functioning of a market, it would be helpful if one could attach a number to this question.

✍ An exhaustive answer to these questions is beyond the scope of an introductory textbook, but the following chapters will shed a little light on the subject. Regarding question one, economists usually distinguish between markets and industries. An industry is a sector of the economy that produces a specific type of good; it is better characterized by the technological way of production that summarizes the physical, biological, and chemical laws that convert the resources needed for production (inputs) into products (outputs). This relationship between inputs and outputs is also called the *technology of production*. As Chap. 8 illustrates, industries differ with respect to the laws linking inputs with outputs and these laws have an important influence on the possible market structures. Furthermore, the perception of goods and services by the “buyers” (customers) has a direct impact on the market structure. If they can, or are willing to, distinguish between, for example, red wine and white wine, all producers of red wine are in the same market for “red wine.” If the customers, however, distinguish between different types of grapes, region of origin, producer, or even characteristics of the vineyard, the market for red wine explodes into a plethora of differentiated markets, where even small local producers may have the market power to influence prices. I will discuss this phenomenon further in Chap. 10. Last, but not least, the legal framework determines market structures. Most countries have, for example, a competition law, the purpose of which is to guarantee a minimum degree of competitiveness on each market, thereby excluding monopolies. However, the opposite can be true as well: patent law, for example, grants the patent holder a temporarily restricted monopoly for those products that can be developed from his patent. In summary, market structure is not completely arbitrary, but it depends, in a complex way, on the technology of production, the perception of goods and services by customers, and the legal framework.

With respect to the second question, the answer is even more difficult. Remember that the dividing line between “few” and “many” is the perception of one side of the market that the price is *de-facto* given. There are industries for which two sellers or two buyers are “many” (there is an example in Chap. 12), and other industries, where a much larger number of competitors is necessary to more closely approach price-taking behavior. Experiments for so-called Cournot markets have shown that the magic number seems to be between two and four.

With these prerequisites, it is now time to analyze the functioning of the first type of market: a market with perfect competition.

References

- Berman, H. (1983). *The Formation of the Western Legal Tradition*. Harvard University Press.
- Weber, M. (1988). Politik als Beruf. In M. Weber, *Gesammelte Politische Schriften* (pp. 505–560). Tübingen: Mohr Siebeck.

Further Reading

- Roberts, J. (1987). Perfectly and Imperfectly Competitive Markets. *The New Palgrave: A Dictionary of Economics*. V. 3.
- Stigler J. G. (1987). Competition. *The New Palgrave: A Dictionary of Economics*. V. 3.