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# Economic and Business History

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## Plan

# Introduction

## Economic life

More than 7 billion people live in the world today. To survive, all these human beings have to satisfy some needs – for example, breathing, or food – that demand the consumption of goods. Some of these goods are free, that is to say, they exist in quantities that exceed what is necessary to satisfy the needs of all human beings – for example, the atmospheric air, which makes it possible to satisfy the need of breathing. Others are scarce, that is to say, they do not exist in enough quantity to satisfy the needs of all human beings – for example, foodstuff, which allows to satisfy the need for food. The same is true of other goods which allow to satisfy other less pressing needs, but equally felt in general by human beings. This is the case, for example, of education, which allows to satisfy the need of preparation for insertion in social life and productive activities.

The scarce goods directly needed for the satisfaction of needs are generally produced from resources, which can be of three different types: natural resources, which have existed independently of human beings; human resources, which are the working capacity of human beings themselves; and produced resources, such as materials, instruments and infrastructure, which are the result of prior productive activity of human beings. Resources are, as a rule, scarce, that is to say, they are available in quantities that are not enough to produce the goods directly necessary to satiate the needs of all human beings.

The phenomenon of the scarcity of goods directly necessary for satisfying needs and of the resources from which they can be produced is at the origin of what is called economic life. Economic life consists in planning and carrying out the activities of production and consumption of the scarce goods directly necessary for the satisfaction of needs, in planning and carrying out the activities of production and use of the produced resources and in the management of all goods used in these activities, which can generally be called economic goods (the term goods is generally used here in a broad sense, encompassing material goods, services and resources; on the typology of economic goods in the broad sense, see box 1.4).

The economic activity carried out by human beings nowadays allows to create an added value that can be valued at more than 50 trillion euros annually (this evaluation obviously involves difficulties that cannot be discussed here). This means that, on average, each human being has an annual income of 7 thousand euros, although there is inequality in the distribution of this income, ranging from the few hundred euros available to a very significant number of human beings, up to the millions available to a very small number of human beings. In any case, it should be noted at the outset that the number of human beings, the total added value created annually by them, the average income available to each of them and inequalities in the distribution of income, are all now higher than at any other time in the history of mankind and they have grown very rapidly in recent centuries. The history of this growth in the number of humans, the level of economic activity, the average income and the inequality of income distribution is one of the fundamental subjects of this text.

## Economic organizations

All human beings perform economic activities of consumption, as it is indispensable for their survival; and the majority of human beings also perform economic activities of production as a way of obtaining the income necessary to carry out the activities of consumption (the exceptions are, of course, human beings in a situation of economic dependence, due to age, health, disability, unemployment, etc.). The economic activities of consumption and production (and also of accumulation of resources produced to support production and consumption) are not, however, carried out in isolation, but in the context of organizations. These organizations constitute economic units, or economic agents, and can assume very different types and sizes.

From one perspective, one can distinguish:

• family organizations that only carry out consumption activities, that is, use goods to directly satisfy the needs of their members, based on income obtained by some of their members (or all them) in other organizations;

• family organizations that carry out consumption activities and also production activities, the latter for consumption by the family members themselves of the goods produced, or for the exchange of these goods for other goods;

• business organizations that produce goods for sale on the market with a view to making a profit;

• state organizations that perform the provision of what is generally called public services;

• and associations created to supply goods and services to their members.

[On this typology, see section B of chapter 1 and box 1.3.]

From another perspective, it can be said that:

• many human beings carry out their consumption, or consumption and production activities, in the context of a family economic organization;

• a majority of human beings nowadays carry out production activities in the context of a productive organization – firm, or state – that does not coincide with the family;

• and a significant number of human beings still perform economic activities in the context of other organizations, especially of the association type.

At the same time, the organizations, or economic units, of the world today have very different sizes, from families consisting of only one person living alone with an annual income of hundreds of euros, to firms, states and associations encompassing millions and even thousands of millions of people and generating annual added value of billions of euros.

This framework of economic units of various types – families, firms, states, associations – of very different sizes is a framework that does not apply to the whole history of mankind and has also developed rapidly over the last few centuries. The history of these transformations is another relevant topic to be discussed in this text.

## Economic spaces

Just as human beings do not carry out their economic activity in isolation, organizations or economic agents also do not carry out their economic activity in isolation, actually they interact with one another, mainly through exchanges of economic goods.

It is possible to go further and say that there are no isolated organizations or groups of organizations today in the world at large, as all organizations operating today interact either directly or indirectly with one another. It is therefore equally possible to say that the contemporary world economy is a global economy.

This does not mean, of course, that some sets of economic units do not have more intense relations with each other and less intense relations with the rest of the world economy. The most relevant sets of this type are the so-called national economies. National economies are traditionally distinguished by a series of institutional characteristics, namely, economic laws, monetary system, tax system, customs area, and economic policy. The picture is still compounded by the existence of supranational spaces, such as the European Union, which have developed some institutional characteristics traditionally specific of national economies, and the existence of economic units, mainly firms and also associations, whose activity extends beyond a single national economy. All of this is considered in more detail below (especially in Box 1.1 and Chapters 6 and 7), but the basic idea that the global economy has within it relevant partial economies should be another starting point for the analysis of the world economy at the present time.

This framework of a contemporary world economy encompassing the whole humanity and of partial economies of various kinds, with particular relevance to the national economies, is a framework which also does not apply to the whole history of mankind, because it has evolved rapidly over the past centuries. The history of these transformations is a third fundamental subject of this text.

## Plan

It is not worth explaining in detail here why a historical analysis, that is to say, an analysis of evolution over time, is a useful approach to understanding the world of today and the prospects of its future evolution. It is, of course, to be expected that the following pages will clearly answer this possible doubt. It is only important, before entering into the subject, to give a brief explanation of the plan of this text.

It takes as a starting point the situation of the world in the eighteenth century, that is to say, about three centuries ago. This starting point is justified by two reasons: on the one hand, the world of the eighteenth century presented a variety of human societies that were practically self-sufficient, that is to say, living in relative isolation from one another, which contrasts strongly with the current situation and is a summary of all previous stages of evolution of the life of humanity; on the other hand, it was in the eighteenth century that the process of acceleration of the transformations of the life of humanity, which led to the formation of the contemporary world economy and contemporary world society and to the main characteristics of the world today as were mentioned in this introduction, started.

This process corresponds to the emergence and evolution of a new economic epoch, which can be characterized as the era of modern economic growth, which started in the eighteenth century in a few national economies, eventually influencing all humanity. In a second chapter, an overview of the process of modern economic growth is presented.

An analysis of the evolution of mankind over the last three centuries follows a chronological approach. The periodization of transformations is always a delicate procedure and the basis of this periodization is presented in more detail throughout the text. It may, however, be stressed at the outset that it is based primarily on the successive waves of technological, institutional and organizational innovations that gave rise to successive stages of economic and social development. In relation to each period thus identified, we try to describe what the main transformations were, namely the ones concerning the available technology, the institutions created to take advantage of this technology and the organizations to which technology and institutions gave origin. Explanations on how these transformations were mutually dependent will be also brought into question.

In summary, the plan adopted is as follows:

1 – The economy of the world before modern economic growth

2 – Modern economic growth: an overview

3 – The beginnings of modern economic growth (late eighteenth and early nineteenth century)

4 – Consolidation of modern economic growth (mid-nineteenth century)

5 – The first globalization and the beginnings of the contemporary world economy (late nineteenth and early twentieth century)

6 – The times of globalization backlash (the world wars and the period between the world wars of the twentieth century)

7 – The times of the division of the world economy and society (third quarter of the twentieth century)

8 – The second globalization and the world economy of the early twenty-first century

## Key topics of introduction

• What economic life is and how it is a consequence of the phenomenon of scarcity.

• What is an economic unit and how its different functions and types are related to the human beings.

• What are the relevant economic spaces and how they are related to the economic units.

## Questions for reflection

• As a rule, each human being satisfies his needs in the context of a family, carries out productive activity in the context of a firm, a state organization, or a family or association, is a citizen of a national state, is a member of one or more associations. Taking the example of yourself and of people you know, examine which economic units each one is connected to.

• It may be said that families, states, trade unions, political parties, sports clubs are, in the first instance, organizations that are not primarily economic. However, they are all economic units as well. Is it possible to figure out a human organization that is not, even marginally, an economic unit ?

• There are associations that gather people and associations that gather firms, states and even associations. Identify examples and examine to what extent they are effectively economic units.

# 1 – The economy of the world before modern economic growth

Before the dawn of the process of modern economic growth, the economic life of mankind was very different from what it became as a consequence of that process. It is important, in order to better understand the evolution of the process of modern economic growth, to take a glance on the world economy and society at the outset, that is to say, what the dominant structures of the economic life of mankind in the early eighteenth century were.

## A – Economic spaces

Before the process of modern economic growth (or, more rigorously, prior to the process of planetization of the Euro-Atlantic world-society that modern economic growth enabled and empowered and which is considered in Chapters 2 to 5), humanity was divided in a plurality of societies with relatively small contacts. This means, in particular, that the world was divided into many global economies, meaning practically self-sufficient spaces in terms of basic goods.

[On this topic see Box 1.1 – Economic spaces in today's world]

### Predatory economies and cultivation economies

The relatively self-sufficient economic spaces that have just been evoked were quite heterogeneous in terms of the way of life.

In some economic spaces the way of life was based on predatory activities, that is to say, on the mere exploitation of the spontaneous fertility of nature. In these economic spaces, the predominant activities were vegetable gathering, hunting and fishing, which provided foodstuffs and the raw materials, supported by transformation activities that produced the instruments of production and consumer goods. All these economic spaces with predatory economies had no sectorial division of labour, that is to say, no specialization of activities among the different economic units. They were local economies, that is to say, they had no regional specialization of productions. Although in the eighteenth century these predatory, local and non-sectorial economies spread across vast regions of the world (inland and north of North America, inland and south of South America, Australia, and deserts of the southwest coast of Africa), they included a relatively small part of mankind (about 5 million people), due to the very low population density the predatory way of life could support (about 1 inhabitant per 10 square kilometres).

Other economic spaces already relied on cultivation, that is to say, on the artificial intensification of the spontaneous fertility of nature, as a way of life. In these economic spaces, the predominant activities were agriculture and animal husbandry, which provided foodstuffs and most of the raw materials, supported by transformation activities that produced the instruments of production and consumer goods and, in cases of more sophisticated economic spaces, by other types of activities.

### Non-sectorial economies and sectorial economies

Some economic spaces with cultivation economies remained non-sectorial, that is to say, they remained having no specialization of activities between the different economic units. All these economic spaces with non-sectorial agricultural economies were local, that is to say, they remained also having no regional specialization of production. Although in the eighteenth century these economic spaces with non-sectorial local cultivation economies spread across vast regions of the world (most of sub-Saharan Africa, much of Asia's interior and islands of the Pacific Ocean), they included clearly a minority of humanity (about 60 million people), due to the low population density the way of life without sectorial or regional specialization of productions could support (about 1 inhabitant per square kilometre in the non-sectorial local cultivation economies with predominant cattle-breeding activities, which corresponded to nomadic societies; a maximum of 3 inhabitants per square kilometre in non-sectorial local cultivation economies with predominance of agricultural activities, which corresponded to sedentary societies).

Other economic spaces with cultivation economies had already sectorial economies, that is to say, they had already developed the specialization of activities among the different economic units. In these economic spaces, the predominant activities were still agriculture and cattle breeding, which provided the foodstuffs and most of the raw materials; however, a significant part of the transformation activities that produced the instruments of production and consumer goods no longer played a role of mere support for agriculture and cattle raising but started being carried out by specialized and distinct economic units, often in a space equally specialized and distinct, the urban environment, that is to say, the cities; and in the cases of more sophisticated economic spaces the urban environment had not only provided the development of economic units specialized in industrial activities, but even as well the development of economic units specialized in service activities (among them, the State, an economic unit specialized in the supply of public goods such as defence or justice).

### Local economies and world economies

Some economic spaces having sectorial specialization of activities remained local economies, that is to say, they had not yet developed the regional specialization of productions. In the eighteenth century, local economies of the sectorial type were already confined to small areas. In fact, they existed only in regions, as parts of the Indonesian archipelago and Arabia, geographically marginal to the spaces of the world-economy type referred to below.

Other economic spaces with sectorial economies were already world-economies, that is to say, they covered relatively vast and heterogeneous regions, among which there was a regional specialization of productions. In the eighteenth century, spaces with world-economies already covered most of the dry lands and accounted for the overwhelming majority of existing humans (around 800 million people), also due to the relatively high population densities that regional specialization of the productions could support (between 10 and 100 inhabitants per square kilometre, depending on the fertility of the cultivated lands).

## Tributary world-economies and the commercial Euro-Atlantic world-economy

Among the world-economies existing in the mid-eighteenth century, some were tributary world-economies, that is to say, they coincided with a political unity, with central power playing a decisive role in determining and carrying on the interregional exchanges under the regional specialization of productions, by means of command mechanisms. Among these tributary world-economies there were:

a) Some empires, that is to say, political spaces involving the dominion of one of its regions over the others. The main empires in the eighteenth century were the following:

• China, or Qing Empire (the name of the Manchu dynasty that ruled it), an empire centred on the Huanghe and Yangzi River valleys and covering a large part of East Asia with more than 300 million inhabitants. During the eighteenth century, the Chinese Empire expanded to Central Asia, reaching an extension of more than 10 million square kilometres.

• India, or Mogul Empire (the name of the Afghan dynasty that ruled it), an empire centred on the valleys of the Ganges and Indus rivers, which in the early eighteenth century covered most of the Peninsula of Hindustan, with more than 3 million square kilometres and more than 150 million inhabitants. During the eighteenth century, the Mogul Empire collapsed; in its previous territory several dozens of independent states were formed.

• Turkey, or Ottoman Empire (the name of the Anatolian dynasty that ruled it), an empire centred on Anatolia and the Balkans, covering most of the eastern and southern coasts of the Mediterranean, with more than 1 million square kilometres and more than 30 million inhabitants.

• Russia, or Romanov Empire (the name of the dynasty of Muscovite origin that ruled it), an empire centred on Eastern Europe and encompassing North Asia and part of Central Asia, with more than 20 million square kilometres and more than 50 million of inhabitants.

b) Some of a national character, that is to say, political spaces with cultural homogeneity in its interior. The main national states of this type existing in the eighteenth century were:

• Japan and Korea, in East Asia.

• Vietnam, Siam, Cambodia and Burma in Indochina.

• Iran, Tunisia, Algeria and Morocco in the world of Islamic civilization.

One of the world-economies existing in the eighteenth century was different from the rest because it was a commercial world-economy, that is to say, because it corresponded to a plurality of autonomous political units among which there existed a regional specialization of productions regulated mainly by a market mechanisms and carried out through exchanges of a commercial nature. This commercial world-economy encompassed much of Europe (except for Russia and the Balkans), parts of North America and South America subject to colonial domination of European states and trade factories on the west coast of Africa established by the same European states, and is therefore generally referred to as the Euro-Atlantic world-economy. The regions covered by the Euro-Atlantic world-economy had an area around 10 million square kilometres and the population of this space exceeded 200 million inhabitants.

Map 1.1 seeks to give a cartographic representation of the spatial distribution of the various types of economies and major world-economies in the eighteenth century.

It is important to make three additional observations on the Euro-Atlantic world-economy:

a) The political units within the Euro-Atlantic world-economy were of a different nature. The most important – Great-Britain, the Netherlands, France, Spain and Portugal – were national states centred in Europe and dominating colonial empires with significant territories in America and trade factories on the west coast of Africa. In Europe there were still some states of significant size and imperial ambitions over their European neighbours, such as Austria, Prussia, Denmark and Sweden. Most of the other European states were city-states and other small states of relatively small weight in international relations.

b) The spaces involved in the Euro-Atlantic world-economy played qualitatively different roles. The richer and more developed regions in North-Western Europe played a central role, maintaining relations with most other regions of the Euro-Atlantic world-economy. The regions of Mediterranean Europe had an intermediate degree of development and an intermediate degree of relations with the other regions, playing a semi-peripheral role. The less developed regions of Eastern Europe and America and the western African coast trade factories played a peripheral role, generally maintaining significant direct relationships only with one region of the centre or of the semi-periphery.

c) The Euro-Atlantic world-economy, or, more precisely, its central and dominant states, had a significant dynamism of expansion, maintaining and controlling important trade relations with the other world-economies and even with other economic spaces mentioned above. At the outset, these relations concerned only luxury goods, that is to say, not essential to the economic life of any of the spaces, with occasional exchange of essential goods. However, the evolution of these trade relations led to their increase in quantitative terms and to qualitative deepening, in the sense of becoming generalized to basic goods, essential for the economic life of both areas, while some initially luxury goods turned into basic goods for the economic life of both spaces. This process tended to lead to the integration into the Euro-Atlantic world-economy of the other global economic spaces involved in these trade relations and was already quite advanced in the eighteenth century in relation to at least two of them: Russia and India. In the latter and in Indonesian Archipelago, the process went so far as to establish the political dominance of European powers over trade factories and even territories of significant extension.

[On this topic, see Box 1.2 – General typology of economic spaces]

## B – Economic units and their interaction

The economic units existing in the different economic spaces mentioned in the previous section were, of course, very different in their characteristics.

[On this topic, see Box 1.3 – Economic units]

### Non-specialized self-consumption units

The economic units that existed in the predatory non-sectorial local economies and in the cultivation non-sectorial local economies were exclusively economic units without functional specialization of the economic activities, that is to say, economic units that were simultaneously engaged in the economic activities of consumption and production, besides the complementary activity of accumulation, mainly of production goods, and without sectorial specialization of the production activities, that is to say, economic units that engaged in economic activities of production related to the generality of the sectors. These were economic units usually coinciding with what is usually considered a family group, which carried out the production and consumption activities in some cases in an autonomous way, in other cases in cooperation with the other (or some other) units of the same type of their economic space.

Economic units without functional specialization of economic activities and without sectorial specialization of production activities were primarily units of self-consumption, that is to say, units whose members consumed mainly goods produced by the units in which they were inserted. Their interaction with other economic units was mainly a cooperative interaction in productive activities that were thus carried out more efficiently and effectively. This interaction was fundamentally regulated by the routine mechanism, that is to say, the repetition of production, consumption and accumulation plans already experienced in the past.

### Units with sectorial production specialization

The economic units that existed in the sectorial cultivation economies were, for the most part, economic units also without functional specialization of the economic activities, that is to say, units that were simultaneously engaged in the economic activities of consumption and production, besides the complementary activity of accumulation, either of productive goods or of durable consumer goods, but with sectorial specialization of production activities, that is to say, engaged in production activities related to only one sector. These were economic units usually coinciding with what is usually considered a family group. These units can, of course, be classified according to the sector of activity of the production to which they were dedicated. It is particularly important to distinguish:

(a) the units of production of private goods, that is to say, goods to which it is possible to apply an exclusion rule, which allows consumption only to the owner of the goods or whoever makes a payment to acquire it, and such rule is applied;

(b) the units of production of public goods, that is to say, goods for which it is not possible to apply or it is decided not to apply the exclusion rule that allows consumption only to the owner of the goods or whoever makes a payment to acquire it. It was in the context of these units, which generally coincide with the states, that is to say, with the organizations that holds political power, that first began to develop more complex organizational structures, as larger political spaces were constituted, implying the direct exercise of the power of a central authority in different regions separated from each other.

[On this topic, see Box 1.4 – Property typology]

The economic units without functional specialization of the economic activities and with sectorial specialization of the production activities were in part units of self-consumption of goods that they themselves produced, partly units that satisfied the needs of its members through the exchange to obtain goods that they did not produce. Their interaction with other economic units was mainly an exchange interaction that could take one of three forms:

a) Direct exchange of self initiative, aiming mainly at the satisfaction of needs, usually regulated by the mechanism of the routine.

b) Direct exchange of the initiative of the public authorities, aiming mainly at the appropriation of surplus production by the public powers, generally regulated by the mechanism of command.

c) Monetary exchange of self initiative, mainly aimed at transforming surplus production into monetary means, generally regulated by the market mechanism.

The relative importance of these three forms of interaction and the three corresponding regulatory mechanisms varied significantly depending on the particular circumstances.

## Units with functional specialization of activities

Some economic units, especially in the Euro-Atlantic world-economy, were already economic units with a functional specialization of economic activities, that is to say, units that were devoted basically to only one of the two fundamental economic activities, consumption or production, together with the activity of accumulation. This is, as will be seen in the following chapters, the type of economic units that became predominant in the economies after the start of the process of modern economic growth. These economic units are currently divided into various types according to their main economic function and the type of goods to which they are eventually engaged. They are distinguished as follows:

a) Families, private non-profit units, which are mainly engaged in consumption activity, in addition to the complementary activity of accumulation, especially of durable consumer goods, real estate and financial assets.

b) Firms, private for-profit units, mainly engaged in the production of private goods, in addition to the complementary activity of accumulation, mainly of production assets, real estate and financial assets. These units can, of course, be classified according to the sector of activity of the production to which they are dedicated.

c) The State, a unit that is basically devoted solely to the production of public goods, in addition to the complementary activity of accumulation, especially of production goods.

d) Associations, non-profit private units set up for the production and supply to their members of goods that are supposed to be obtained more efficiently and effectively in this way.

Economic units with a functional specialization of economic activities interact with other economic units mainly in the form of monetary exchange of self initiative and commercial nature, generally regulated by the market mechanism. The State is an exception, which, due to the very nature of its activities, normally maintains a significant interaction in the form of direct exchange of initiative of the public powers regulated by the command mechanism (collection of taxes, requisition of material goods and services, provision of public services, etc.).

## C – Forms of organization of production

From another perspective, it is possible to classify the forms of organization of production existing in the economies prior to the process of modern economic growth into four fundamental types:

a) Domestic production, carried out by economic units without functional specialization of activities, for self-consumption – This form of production organization was practically the only one that existed in predatory and cultivation non-sectorial local economies and still had significant importance in sectorial economies and even in world-economies.

b) Artisanal production, carried out by economic units without functional specialization of the activities and with sectoral specialization of the activities, for exchange, aiming at obtaining goods that they do not produce themselves, or the satisfaction of other obligations (tributary, for example) – This form of production organization was predominant in cultivation sectorial local economies and even in the tributary world-economies and was still relevant in the Euro-Atlantic world-economy.

c) Capitalist production, carried out by economic units of the firm type (therefore with functional specialization of the activities), for exchange, aiming at obtaining a profit – This form of organization of the production was practically absent in local economies, was clearly a minority in tributary world-economies and was gaining significant importance in the Euro-Atlantic world-economy.

d) Public production, carried out by public economic units, that is to say, controlled by the State, to supply the whole population with public goods to meet the needs that imply the consumption of these goods – This form of organization of production existed in all the types of economies with sectorial specialization of the activities, but only tended to assume a dominant role in the tributary world-economies.

Given the importance of the capitalist form of organization of production for the process of modern economic growth, it is worth going into further detail in its analysis.

## D – Business, market and capitalism before modern economic growth

The preceding sections show how the economic life of mankind before the beginnings of the process of modern economic growth relied predominantly on structures very different from the capitalist market system, which business and enterprise allow and imply. However, the existence of business and firms clearly preceded the start of this process. In order to conclude the characterization of economic life before modern economic growth, it is important to examine the relative importance of various types of business and firms, particularly in the context of the Euro-Atlantic world-economy and within that space, especially in its central areas.

[On this topic, see Box 1.5 – Business]

### Commercial business and commercial firms

In quantitative terms, the most significant business activities before modern economic growth, particularly in the Euro-Atlantic world-economy, were in the commercial sector, that is to say, they involved buying commodities for resale, usually in a different region from the one where the acquisition took place. As a consequence, the leading firms in the period immediately before the start of the process of modern economic growth were undoubtedly commercial firms, including long-distance trading companies.

Long-distance trading companies were, as a rule, companies formed as joint-stock companies, that is to say, whose owners had a liability limited to the capital subscribed in the firm. They were mainly engaged in acquiring goods in the periphery or outside the Euro-Atlantic world-economy for resale in the centre or semi-periphery of the Euro-Atlantic world-economy. In some cases, they added to their core business of buying, transporting and selling commodities, production activities and even state functions in peripheral areas of the Euro-Atlantic world-economy.

In virtually all European countries with colonial activity in the sixteenth to eighteenth centuries (the Netherlands, England, then Britain from the union with Scotland in 1707, France, Portugal, etc.), companies of this type were established, usually with exclusive privileges to trade in certain regions or routes and sometimes with charges for the provision of services of a public nature. The following were especially relevant for the impact that their activity had at crucial moments in the evolution of the economic life of their respective countries and the world at large:

(a) The British East India Company (EIC), established in 1600 by the merger of firms and merchants of England involved in trade with the Indian Ocean and Far East regions. It was a company dedicated to trade with the Indian Ocean and Far East regions and held the exclusive of this trade from England. It came to govern a significant and growing part of India between 1757 (when it took over the government of Bengal formally as vassal of the Mogul Empire) and 1858 (when the British government took over the administration of the EIC possessions, following its intervention against the revolt that had broke the previous year against EIC's government). It was extinguished in 1874.

(b) The Dutch East India Company (Vereenidge Ost-Indische Compagnie, or VOC) established in 1602 by the merger of firms and merchants of the Netherlands engaged in trade with the Indian Ocean and Far East regions. It was a company similar to the EIC, which came to manage vast regions (Indonesian Archipelago, Malaysia, Ceylon) and also promoted the formation of the Dutch colony of the Cape in the extreme south of Africa as a refreshment station for its fleets. Its extinction implied the assumption by the Dutch government of its possessions in the Indian Ocean and Far East (at that time practically reduced to Indonesia). It was extinguished in 1798.

(c) The Dutch West Indies Company (Geoctroyeerde Westindische Compagnie, or GWIC), established in 1621 with the exclusive trade with Africa and America from the Netherlands. In addition to the commercial activities proper, it was involved in piracy against the fleets that linked the Castilian possessions of America to the metropolis (it was famous the taking of a fleet carrying huge amounts of silver in 1628, which allowed the payment in that year of a dividend higher than the capital), in the promotion of the establishment of colonies of plantation in the Caribbean and Guyana and of settlements in North America (it was especially important the foundation at the mouth of the Hudson River of the colony of New Amsterdam, that gave rise to the current New York) and in an attempt to conquer Portuguese possessions in Brazil and Africa (which, after a fleeting dominance of Brazil and Angola, essentially failed, which caused GWIC to go into technical bankruptcy). The GWIC ceased operations in 1674, resumed activities in 1675 and went bankrupt and ceased operations in 1791, with the Dutch government taking over the territories that remained under its rule (Netherlands Antilles and Suriname).

(d) The French East Indies Company (Compagnie Française pour le Commerce des Indes Orientales), established in 1664 with characteristics similar to those of the English and Dutch counterparts to compete with them, but which did not succeed and was eventually extinguished in 1795.

(e) The French Mississippi (Compagnie du Mississippi), founded in 1684 to explore the French colony of the Mississippi Valley. It came to be the target of a speculative bubble at the end of the second decade of the eighteenth century, going into technical bankruptcy in 1720 and ceasing activities in 1721.

(f) The British South Seas Company (The Governor and Company of the Merchants of Great Britain trading to the South Seas and other parts of America and for the Encouragement of Fishing), constituted in 1711 mainly to explore trade with the Castilian colonies of America whose openness was anticipated following the so-called War of Succession of Spain (1701-1714). It also came to be the target of a speculative bubble at the end of the second decade of the eighteenth century and went into technical bankruptcy in 1720, but managed to avoid the cessation of activities on that occasion and was dedicated during the rest of the eighteenth century and the beginning of the nineteenth century to various activities, the most important being the slave trade from Africa to America and the capture of whales in the North Atlantic. It was extinguished in 1838.

The large size, complexity and diversity of the activities of these companies meant that their internal organization had to be very sophisticated and equally complex. Strictly speaking, this internal organization of long-distance trading companies corresponded to the multidivisional structure model: a central administration carried out strategic management; there were specialized divisions in the various activities carried out by the company and in the pursuit of these activities in different regions of the world; a hierarchy of salaried managers carried out functional and operational management in the context of these divisions.

[On this topic, see Box 1.6 – Strategic, functional and operational management levels]

Of course, most commercial firms before modern economic growth did not have the size or sophistication of these companies. These were generally unlimited partnerships (that is, where all partners assumed unlimited liability for the debts of the firm) or mixed partnerships (that is, where there were co-partners with limited liability and partners with unlimited liability), formed with some stability, or only for specific endeavours, and individual traders with modest capital and relatively simple centralized and non-departmentalized structures.

[On this topic, see Box 1.7 – Legal forms of firms]

### Financial business and companies

After commercial activities, the most important business activity before the take-off of modern economic growth, particularly in the Euro-Atlantic world economy, was financial business, especially the credit and insurance business, already carried out by specialized companies, banks and insurers.

Some banking companies were already quite significant in size. The most important for the role they played in the economic evolution of their countries and the world at large were:

(a) The Amsterdam Bank (Amsterdamsche Wisselbank), set up in 1609 on the initiative of the municipality of Amsterdam, with a view to centralizing big payments among merchants in the city, ensuring the stability of the unit of account in which they were made. More than a credit institution, it was therefore a system of payments using accounting records (precursor to clearing houses, see Box 7.1). After almost two centuries of profitable activity, it went into technical bankruptcy in 1790 and ended its activities in 1819.

(b) The Bank of England (The Governor and Company of the Bank of England), set up in 1694 as a joint venture to lend to the Government of England the funds necessary to finance the war it then waged against France. It was authorized to issue convertible notes and assumed the functions of bank of the English government and later of the British government. At the end of the eighteenth century it was beginning to assume the functions of central bank, that is to say, to become mostly the bank of commercial banks (on the notion of central bank and the establishment of central banks, see section C of chapter 5 and section B of Chapter 6). It is today the central bank of the United Kingdom of Great Britain and Northern Ireland.

The size of these banks implied, in addition to their incorporation as public limited companies, a centralized and functionally departmentalized organizational structure.

Of course, most financial firms before modern economic growth did not have the size or sophistication of these banks. In the banking business, there existed in the countries of the Euro-Atlantic world-economy banks under the form of corporations, banking houses under the form of unlimited liability partnerships and individual bankers, constituting firms by rule of modest size. In the insurance business, insurance companies existed in practically all countries of the Euro-Atlantic world, usually under the form of corporations, also by rule of modest size. These were usually companies with a centralized and non-departmentalized organizational structure.

An organizational model with some importance among financial firms was the networking of firms established in different places through family ties. It is a model that has been tried since at least the fifteenth century, especially by families of Italian origin (the most remarkable the Medici family, originally from the city of Florence, who developed their business primarily as a banker of the Holy See, became the royal family of the Grand Duchy of Tuscany and later related by marriage with some royal houses of Europe, some of its members having reached the papacy) and German origin (the Függer and Welser families originating from the city of Augsburg, who developed their business chiefly as bankers of the Habsburg royal and imperial house).

### Financial affairs and financial markets

It is worth noting that, in spite of the still incipient nature of most financial affairs, the era prior to modern economic growth saw the development of specialized markets for financial transactions, particularly in the cities that became the main financial centres of the time: Amsterdam, London and Paris. These were spaces that were consensually dedicated to conducting financial transactions in a systematic and organized way, although generally not yet institutionalized.

The era prior to modern economic growth witnessed at least two experiences of speculative bubble followed by price collapse. The first occurred in 1636 and early 1637, collapsing in February of 1637, in the Netherlands, curiously around an exotic commodity, tulip bulbs. The second, as mentioned above, occurred at the end of the second decade of the eighteenth century, collapsing in August of 1720, simultaneously in the main financial markets of Europe (London, Paris and Amsterdam), basically around the stocks of the companies created for the colonization and commerce in America, the French Company of the Mississippi and the British South Seas Company. Following this speculative bubble of the late second decade of the eighteenth century, measures were taken in some of the main Euro-Atlantic world-economy countries to restrict the formation of joint stock companies, requiring the authorization of the public authorities for their constitution. These measures may have conditioned the forms and size of the firms in which the beginnings of the process of modern economic growth relied, a topic that will be discussed in the following chapters, especially in Chapters 3 and 4.

### Business and production firms

Production firms before modern economic growth generally involved modest amounts of capital and had relatively simple, centralized and non-departmentalized structures. Capitalist production generally took one of two forms:

a) The putting-out system, that is to say, the system in which the workers carried out the production in their home, using instruments that were, as a rule, their property, but working raw materials supplied by the capitalist, who collected the final product in return of the wage payment.

(b) The factory system, that is to say, the system in which the workers carried out the production at the factory, using instruments and raw materials owned by the capitalist, who naturally took possession of the final product, remunerating the workers with their wage.

However, capitalist production in a factory system took almost exclusively the form of manufacturing, that is to say, production using technologies that used simple tools and traditional energy sources (human, animal, wind, water, etc.). There was virtually no capitalist production in the form of machine production, that is to say, production using technologies that resort to complex instruments (machines) and modern energy sources (in particular fossil fuels). It is precisely the phenomenon of the emergence and, above all, of the diffusion of capitalist production with the machine production system, one of the main facts that gave rise to the beginning of the process of modern economic growth, as explained in chapter 3.

## Key topics of Chapter 1

• Typology of economic spaces existing before the process of modern economic growth and economic spaces resulting from this process.

• Forms of interaction between economic units and their relation to the typology of economic units.

• Typology of goods and their relationship to the typology of economic units.

• Relationship between companies and businesses ???? and basic features of the main types of business – commercial, financial and productive.

• Levels of management and possible legal forms of companies.

## Questions for reflection

• Why is a predation economy never a sectorial economy? Why is a non-sectorial economy never a world-economy ?

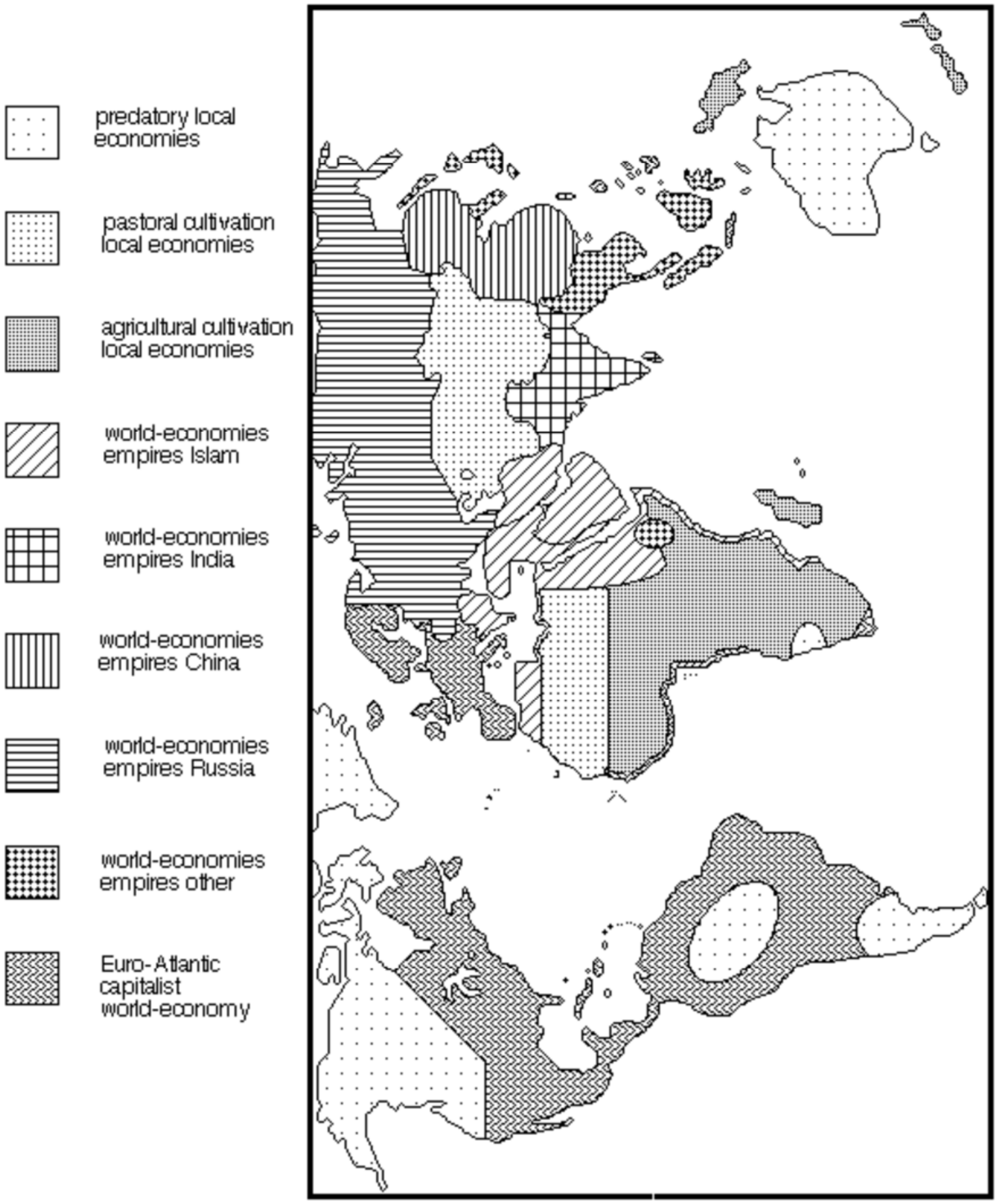
• How do the different types of economic spaces existing in the eighteenth century relate to the different ways of life and degrees of sophistication of economic life resulting from the previous evolution of humanity ?

[On this topic, see Box 1.8 – Economic evolution of humanity until the eighteenth century]

• Based on recent personal experience, identify types of goods consumed and interactions between economic units that their supply implied.

• Why was it that before the process of modern economic growth, large and complex firms were rare and concentrated in the activities of long-distance commerce and finance ?

## Map 1.1 – The world in the eighteenth century



## Box 1.1 – Economic spaces in the world today

An economic space is a relevant set of interdependent economic units, that is to say, a set of economic units that maintain relatively intense interactions with each other and relatively less intense interactions with economic units that are not part of the same space.

It is clear that it may be important for each economic unit to consider different relevant economic areas where it operates. In today's world economy, for most organizations these relevant spaces are usually at one level a national economy and at another level the world economy itself.

A national economy is a relevant space because it presents a set of institutional characteristics that tend to intensify the relations between the economic units that belong to it. These characteristics are:

• the legal area, that is to say, the existence of legal norms for the framing of economic life that are identical throughout the national economy and different from the legal norms existing in other national economies;

• the monetary area, that is to say, the existence of a specific monetary unit and specific means of payment, distinct from the monetary units and the means of payment of other national economies;

• the fiscal area, that is to say, the existence of an identical tax system throughout the national economy, different from the tax systems of other national economies;

• the customs area, that is to say, the absence of controls and obstacles to transactions within the national economy, and the existence of controls and possible obstacles to transactions with other national economies;

• and the political area, that is to say, the application throughout the national economy of the same economic policy, distinct from the economic policies applied in other national economies.

The national economies of the contemporary world economy are interdependent. It is clear that not all national economies have strong relationships with all other national economies, but it is always possible to find a chain of intense relations between two national economies (usually through national economies which are therefore identified as the centre of the contemporary world economy, such as the United States of America). It is this interdependence that makes a world economy exist simultaneously with national economies.

It should be noted that the existence of the contemporary world economy involves the existence of international organizations, especially international economic organizations, as well as complex institutional situations, for example the assumption by supranational spaces, such as the European Union, of institutional characteristics traditionally associated with national economies. These aspects will be considered in due course.

## Box 1.2 – General typology of economic spaces

As exemplified in box 1.1 with the economic spaces in the world today, the relevant economic spaces can be of two types:

• global economies, that is to say, economic spaces that are self-sufficient as a whole relative to basic goods – it is the case of the contemporary world economy;

• partial economies, that is to say, relevant economic spaces that are interdependent with other economic spaces to accomplish the supply of basic goods – it is the case of the national economies today.

As exemplified in section A of chapter 1 in relation to the economic spaces in the eighteenth century, global economies can be, in terms of the spatial organization of production, of two types:

• world-economies, that is to say, global economies (generally of considerable size) within which there are relevant partial economies (among which a regional specialization of productions is established);

• local economies, that is to say, global economies (generally of small size) within which there are no relevant partial economies (nor regional specialization of production).

As also exemplified in section A of chapter 1 in relation to the economic spaces existing in the eighteenth century, world-economies can be, in terms of organization and operation, of two types:

• commercial world-economies, that is to say, world-economies that gather multiple political units, and where the definition and carrying out of regional specialization of production relies primarily on market mechanisms;

• tributary world-economies, that is to say, world-economies that coincide with a single political unit and where the defining and carrying out regional specialization of production relies primarily on the role of the State.

As also exemplified in section A of chapter 1 in relation to the economic spaces existing in the eighteenth century, economies (global or partial) can be, in terms of the sectorial organization of production, of two types:

• sectoralized economies, that is to say, economies within which sectorial specialization of productions is established;

• non-sectoralized economies, that is to say, economies within which there is no sectorial specialization of production.

It should be noted that world-economies are necessarily sectorialized (regional specialization of production without sectorial specialization is not possible !); and that local economies can be sectorialized or non-sectorialized.

As exemplified in section A of chapter 1 in relation to economic spaces existing in the eighteenth century and throughout the book with spaces resulting from the process of modern economic growth, economies (global or partial) may be in terms of their relation with nature, of three types:

• transformation economies, that is to say, economies dominated by the activities of transformation goods collected from nature, especially industrial and service activities, which are the economies resulting from the process of modern economic growth, especially the contemporary world economy;

• cultivation economies, that is to say, economies dominated by activities of artificial enhancement of the spontaneous fertility of nature, including agriculture and animal husbandry, which are the case of the world-economies prior to the process of modern economic growth, as well as sectorialized local economies and some non-sectoralized local economies;

• predatory economies, that is to say, economies restricted to activities based on the exploitation of the spontaneous fertility of nature, such as harvesting, hunting and fishing, which are the case of some non-sectoralized local economies.

Schematically:

<table>
<tr><td rowspan="6">global economies</td><td>predatory</td><td>non-sectorialized</td><td colspan="2">local (without partial economies)</td></tr>
<tr><td rowspan="4">cultivation</td><td>non-sectorialized</td><td colspan="2">local (without partial economies)</td></tr>
<tr><td rowspan="3">sectoralized</td><td colspan="2">local (without partial economies)</td></tr>
<tr><td rowspan="2">world-economies (with partial economies)</td><td>tributary</td></tr>
<tr><td>commercial</td></tr>
<tr><td>transformation</td><td>sectoralized</td><td>contemporary world economy (with partial economies)</td><td>commercial</td></tr>
</table>

## Box 1.3 – Economic units

Economic unit, or economic agent, is an organization that controls economic goods, takes decisions about their use and carries out economic activities, with a view to pursuing goals, which may be the satisfaction of needs – this is the case, in today's world, of families, states and associations – or profit-seeking – this is the case in today's world, of firms.

The control of economic assets usually involves the legal institution of property. In a simplified form, ownership of an economic unit over an economic good may be defined as the ability to decide its use in economic activities, in particular its use for consumption (for instance, the use of a garment), which may involve its destruction (for instance, the destruction of food when it is ingested), or its use as an investment good, that is to say, for the indirect satisfaction of needs (for example, the use of an egg to produce a new animal, or of fodder to feed that animal, which will then be used for the direct satisfaction of needs).

Decisions on how to use economic goods constitute management activity, an activity inherent to all economic units, but more or less formalized according to the type of economic unit in question. In formal terms, the management activity involves a process of drawing up plans, aiming at the goals defined for the unit.

The carrying out of economic activities corresponds, in principle, to the accomplishment of the plans elaborated in the activity of management. It is clear that it is possible for the implementation not to comply with the plans, either due to the inadequacy of the defined goals, or due to poor planning in the light of these goals, or due to errors in the implementation of the plans or unforeseen external reasons. Therefore, the management activity also involves the monitoring of compliance with the plans and their possible revision, due to changes in the prevailing context.

## Box 1.4 – Typology of goods

According to the criterion of their availability for use, goods in the broad sense, that is to say, material goods (goods that can be consumed after their production) and services (goods that have to be consumed at the time they are produced), including natural, human and produced resources, can be classified as:

(a) Private goods – These are goods for which there is rivalry in consumption, that is to say, for which consumption by one economic agent prevents consumption by any other economic agent, and for which there is the possibility of exclusion, that is to say, it is possible to allow consumption only to the economic agent that possesses the good or pays for its use. Material goods and personal services are usually private goods.

(b) Social goods – These are goods that do not show the characteristic of rivalry in consumption, that is to say, which can be used simultaneously by a number of economic agents, and for which there is the possibility of exclusion, that is to say, it is possible to allow consumption only to the economic agent that possesses the good or pays for its use. The services commonly known as collective services, such as, transport, or services provided by physical networks, such as communication, electrical, water supply, sanitation, etc. networks are usually social goods.

(c) Collective goods – These are goods for which there is rivalry in consumption, that is to say, for which consumption by one economic agent prevents consumption by any other economic agent, and for which there is no possibility of exclusion, that is to say, which, once made available, it is not possible to prevent its consumption to those who are in the sphere of product availability. Some natural resources are collective goods, although it should be emphasized that the situation of collective goods can usually be altered through institutional arrangements that place these resources in the sphere of private property.

(d) Public goods – These are goods that do not show the characteristic of rivalry in consumption, that is to say, which can be used simultaneously by a number of economic agents, and for which there is no possibility of exclusion, that is to say, which, once made available, it is not possible to prevent its consumption to those who are in the sphere of product availability. Some services, namely external defence and internal security of society, are pure public goods. In addition to these pure public goods, there are also the so-called public merit goods – these are private or social goods which the society decides to provide at a price that is below its cost. Education, health and social security are social goods that are often nowadays provided as public merit goods.

## Box 1.5 – Business

A business is an activity in which an economic unit applies a certain amount of money in order to recover it after some time, plus an additional. The initial amount of money applied in the business is called capital; the additional amount that is sought after some time is called profit. It is clear that a business always involves a risk, resulting from uncertainty about the future and therefore about the amount of profit that will be obtained. Strictly speaking, the profit can assume a positive value (profit in a strict sense), a null value, or even a negative value (loss).

Three fundamental types of business can be distinguished according to the nature of the activity accomplished:

a) Financial business, which involves only the manipulation of money. Among financial business it is possible to distinguish three subtypes: the financial business of credit or loan; the insurance business; and financial speculation.

b) Commercial business, which involves the manipulation of money and goods.

c) Productive business, which involves the manipulation of money and goods and the carrying out of a productive process.

It is easy to understand that productive business can consist of production of material goods or services; private goods or social goods; but not of collective goods, nor of public goods. The reason is obvious: since private ownership of collective goods or public goods is not possible, it is not possible to guarantee the recovery of their production costs through their sale. It should be noted, however, that it is possible to carry out the private production of collective goods or public goods if some entity (usually the State) takes the initiative to order them and pay for their production (of course that entity does not, in principle, take the initiative in order to carry out a business, but just to ensure the satisfaction of the needs to which the collective or public goods in question are intended).

## Box 1.6 – Strategic, functional and operational management levels

In a complementary perspective to that presented in the text, a firm can be defined as an economic unit that carries out a business activity. For this, a firm has to plan its activities according to the established goals, to create an internal organizational structure needed to carry out these activities and to carry out the activities.

These three stages of a firm's activity correspond to three levels of management:

• the level of strategic management, which corresponds to the definition of goals, the planning of the activities according to these goals, the evaluation and monitoring of the results and the response to external shocks;

• the level of functional management, which corresponds to the internal operations needed to implement the decisions taken at the strategic level;

• and the level of operational management, which corresponds to the control of the effective accomplishment of the activities.

These three levels of management have different implications for the firms performance; therefore, their exercise imply different statutes and responsibilities. It is clear that strategic management has a central and comprehensive character and should therefore be considered top management; functional management has a specialized character, involving areas such as financing, production, marketing, accounting, etc., and should therefore be considered intermediate level management; and operational management has a specific character, involving the supervision of the various activities, and should therefore be considered as a lower level management.

On the other hand, the size and complexity of each firm and its activity imply various forms of internal organization. Thus, in a smaller and simpler firm different levels of management can be performed by the same agents; in a larger and more complex firm, different levels of management tend to specialize not only vertically (which implies that strategic management, functional management and operational management are carried out by different agents), but also horizontally (that is to say, operational management and even functional management tend to be split into different tasks performed by different agents).

## Box 1.7 – Legal forms of firms

From the point of view of ownership firms can take the form of:

a) Individual firms, owned by a single person, the owner.

Individual firms are traditionally firms with unlimited liability (although it is now possible to set up individual firms with limited liability). Under this form of ownership, the owner is unlimitedly responsible for the liabilities of the firm. In other words, the personal wealth of the owner and the assets of the firm tend to be confused and the entire assets of the the owner may be called to settle the liabilities of the firm.

b) Collective firms, jointly owned by several persons. Among collective firms it is possible to distinguish three forms of ownership:

b.1) Partnerships with unlimited liability – Under this form of ownership, all owners are jointly and unlimitedly responsible for the liabilities of the firm. In other words, all assets of the partners' wealth are collateral of the company's liabilities.

b.2) Limited liability companies – Under this form of ownership, the owners are only responsible for limited amounts of the liabilities of the firm. This limitation typically takes one of two forms:

b.2.1) Each owner is responsible for the entire capital of the firm. In other words, only part of the assets of each owner's wealth, equivalent to the capital of the firm, constitutes a guarantee of the liabilities of the firm.

b.2.2) Each owner is only responsible for its participation in the firm's capital. In other words, only part of the assets of each owner's wealth, equivalent to their participation in the firm's capital (the nominal value of their shares), constitutes a guarantee of the liabilities of the firm. This is the typical joint-stock company.

b.3) Firms with mixed liability – Under this form of ownership, some owners are only responsible for limited amounts of the liabilities of the firm and other partners are unlimitedly responsible for the liabilities of the firm. The limits of the liability of the owners whose liability is limited may, of course, correspond to the whole capital of the firm, or only to their shares.

## Box 1.8 – Economic evolution of humanity until the eighteenth century

It is not the purpose of this text to examine the economic evolution of mankind until the eighteenth century. However, it is worth noting that the various types of economic spaces that existed in the eighteenth century are a kind of summary of what this evolution was. In fact:

(a) The way of life of local predatory economies was the way of life for all mankind until about 10,000 years ago.

(b) The way of life of local, non-sectoralized cultivation economies first emerged about 10,000 years ago in the region of Palestine and Syria, with the epochal innovation that was the introduction of agriculture and animal husbandry; then it gradually became the way of life of most of humanity, whether by spread or by repetition of this innovation.

(c) The way of life of the sectorialized local cultivation economies first appeared about 6,000 years ago in Mesopotamia, or Iraq, with the epochal innovation that was the introduction of the separation between rural spaces and cities; then it gradually became the way of life of most of humanity, whether by spread or by repetition of this innovation.

(d) The way of life of world-economies first emerged in the middle of the third millennium before the common era, also in Mesopotamia, or Iraq, with the formation of the first long-distance trade flows; then it gradually became the way of life of most of humanity with the development of these trade flows usually associated with the formation of empires and civilizations; it should be noted that empires, although the most spectacular social constructions in the history of mankind, were not, however, generally stable in the very long run.

# 2 – Modern economic growth: an overview

As was pointed out in the introduction, over the last two and a half century the economy of the world entered a new economic epoch, which can be identified as the epoch of modern economic growth. As was also pointed out in the introduction, this new epoch was characterized by a significant growth of population, of the level of economic activity, and therefore the added value or income resulting therefrom, and of the average income per capita of the world. The measurement of the number of human beings and the income of the economic activity carried out by them faces statistical and, in the case of income, conceptual difficulties, that can not be discussed here. The following tables give an idea of what is reasonable to assume for the values of these variables, and their growth rates, in years roughly corresponding to those used as the boundaries of the periods considered in subsequent successive chapters of this book (except for more recent years, whose evolution is discussed in the last chapter).

[On the measurement of economic activity, see Box 2.0]

### Table 2.1 – Population, income and average income per capita of the world

Source: Angus Maddison, The World Economy: a millennial perspective, Paris: OECD, 2001.

| year | population (millions of people) | income (billions of dollars at 1990 prices) | income per capita (dollars at 1990 prices) |
|---|---|---|---|
| 1700 | 603 | 371 | 615 |
| 1820 | 1 041 | 694 | 667 |
| 1870 | 1 270 | 1 101 | 867 |
| 1913 | 1 791 | 2 705 | 1 510 |
| 1950 | 2525 | 5 336 | 2 114 |
| 1973 | 3 913 | 16 059 | 4 104 |
| 1998 | 5 908 | 33 726 | 5 709 |

### Table 2.2 – Population, income and average income per capita growth rates in the world

Source: Angus Maddison, The World Economy: a millennial perspective, Paris: OECD, 2001.
Unit – Average annual growth rates (%).

| period | population | income | income per capita |
|---|---|---|---|
| 1700-1820 | 0.45 | 0.52 | 0.07 |

| period | population | income | income per capita |
|---|---|---|---|
| 1820-1870 | 0.40 | 0.93 | 0.53 |
| 1870-1913 | 0.80 | 2.11 | 1.30 |
| 1913-1950 | 0.93 | 1.85 | 0.91 |
| 1950-1973 | 1.92 | 4.91 | 2.93 |
| 1973-1998 | 1.66 | 3.01 | 1.33 |

The process of modern economic growth has therefore meant a multiplication of the added value annually produced by the economic activity carried out in the world by a factor of more than 200 in about three centuries. This growth allowed that, despite the growth of population, multiplied by a factor of more than 10, the average income of the world population was multiplied by a factor higher than 10 as well.

Before analysing the successive relevant phases of the modern economic growth process, which are developed in the following chapters, it is important to present a general overview of the the main characteristics of this process.

## Population growth

The increase in the world's population was, of course, only possible thanks to an increase in the availability of foodstuff, not only because there was an increase of the number of people to be fed, but also because there was an improvement of the average level of satisfaction of the foodstuff needs of the humanity – food shortages and even hunger have not disappeared, but today they reach a much smaller proportion of the world's population than before the process of modern economic growth. This is a consequence of progress in agriculture and livestock breeding, an element of the process of modern economic growth that is sometimes down played but can not be ignored for a complete understanding of the process.

From the point of view of demographic behaviour, it should be noted that societies prior to modern economic growth generally had relatively high birth and death rates (above 3% of the population per year), quite irregular and relatively close to each other, displaying low population growth; the start of the process of modern economic growth was generally accompanied in every region of the world by a drop in mortality, triggering a significant population growth; a few decades later, the consolidation of the process of modern economic growth was generally accompanied, in every region of the world, by a fall in the birth rate, bringing down the growth of the population; highly developed societies generally have relatively low birth rates and mortality rates (around 1% of the population per year), stable and close to each other, with little or no population growth. Moreover, the progress of transport has greatly increased interregional, international and even intercontinental migrations, although there have often existed (and still exist today) institutional obstacles to those migrations.

It should be stressed that the decline in mortality throughout the process of modern economic growth can mainly be explained by this process itself, firstly because it has led to a significant increase in living standards, reducing food shortages and increasing resistance to disease; at the same time, it provided innovations in medicine, whether preventive (for instance, vaccines) or curative (for instance, antibiotics), which reduced the impact of disease.

The decline of birth rate is also related to the process of modern economic growth, because it provided the physical and chemical means of contraception that allowed the control of fertility (and along with this control the possibility of satisfying the preference for a smaller number of children usually associated with the increase of income in contemporary societies).

[On this topic, see Box 2.1 – An example of demographic transition]

## Income growth

The growth of income, or value added by economic activity, must be explained by the increase in the human and produced resources available to be used in economic activity and by the increase in the productivity of these resources.

The increase in available human resources was, of course, due to the increase in population.

The increase in available produced resources resulted mainly from the increase in economic activity and the resulting output. There was also some increase in the share of income saved and invested in additional physical resources for production.

The increase in productivity was, in turn, the result of several facts:

• the increase in the physical capital allocation per worker, as a result of the investment in physical capital formation;

• the increase in the qualification of the workforce, the result of investment in education and skills of human resources, what is sometimes called human capital;

• the progress of technology embodied in physical capital;

• the improvement of social institutions and the organizational structure of economic units;

• and the intensification of regional specialization in production.

From another perspective, it can be said that the explanation for the increase in productivity that accompanied modern economic growth lies in the introduction of technological, institutional, organizational and geographical innovations in the economic life of mankind over the last quarter of the millennium and in the incorporation of these innovations in the physical capital and human capital available.

[On this topic, see Box 2.2 – An example of growth in economic activity and income]

## Growth of Income per capita and improvement of living standards

The main consequence of the increase in productivity that accompanied modern economic growth was the increase in the average income of the population. Additional income meant, of course, mainly additional consumption and, therefore, greater satisfaction of needs, that is to say, higher standards of living. It also meant greater availability of resources for investment, which resulted in an increase in the allocation of physical capital per worker, which, as mentioned above, was one of the factors in the process of modern economic growth itself.

However, since the technological, institutional, organizational and geographic innovations that explain the increase in productivity were only possible due to the systematic application of scientific knowledge to economic activity, it can also be said that, ultimately, the explanation of the process of modern economic growth lies on that application.

[On this topic, see Box 2.3 – An example of per capita income growth]

## Growth and inequality

As pointed out in the introduction, the process of modern economic growth was accompanied by an increase in the inequality of the distribution of income among human beings, concomitant with the increase in their average income.

Measuring inequality in income distribution is subject to statistical and conceptual problems that are even more complex than population and income measurement. However, it is reasonable to present a concise estimate in the following table (inequality measured by the Gini index).

## Table 2.3 – Inequality of income distribution

Source – Based on François Bourgignon, Christian Morrison, "Inequality among world citizens: 1820-1992", American Economic Review , 92: 727-774, 2002.

| year | Total inequality | Inequality between national economies * | Inequality within national economies * |
|---|---:|---:|---:|
| 1700 | 0.35 | 0.05 | 0.30 |
| 1820 | 0.45 | 0.10 | 0.35 |
| 1870 | 0.55 | 0.15 | 0.40 |
| 1913 | 0.65 | 0.35 | 0.40 |
| 1950 | 0.75 | 0.40 | 0.35 |
| 1973 | 0.85 | 0.55 | 0.30 |
| 1998 | 0.85 | 0.50 | 0.35 |

* and other relatively self-sufficient economic spaces existing up to the end of the 19th century

The general trend seems to have been that of a significant increase in inequality, only curtailed (but not reversed) in the last quarter of the twentieth century. However, the decomposition of this inequality into the part explained by the difference in average income between national economies (and other relatively self-sufficient economic spaces existing up to the end of the nineteenth century) and the part explained by the inequality within national economies (and other relatively self-sufficient economic spaces up to the end of the nineteenth century) shows that practically all the increase in inequality has resulted from the increase in differences of average income between national economies (and other relatively self-sufficient economic spaces up to the end of the nineteenth century), which has more than doubled and was only slightly reversed in the last quarter of the 20th century). On the contrary, the differences within the national economies and other relatively self-sufficient economic spaces that existed up to the end of the nineteenth century (which were relatively high in the world-economies and relatively small in the local economies) increased by about a third during the eighteenth and nineteenth centuries, reversed this increase during most of the twentieth century, and increased slightly again in the last quarter of the twentieth century.

The increase in inequality between national economies over most of the process of modern economic growth has resulted from the fact that the process has started in a relatively small number of national economies of the Euro-Atlantic world-economy and has spread to other national economies at first at a very gradual pace, which increasingly accelerated as time went by. It was only at the end of the twentieth century that this acceleration seems to have reached the threshold of reversing the global increase in inequality between national economies (which does not mean, of course, that many national economies, although affected by the process, still do not have really benefited from it; it is a question to be taken up over the next few chapters).

The fluctuations of inequality within national economies are explained by two factors: one is the constant tension between the introduction of innovations for which the majority of the population is not prepared and which therefore tend to benefit only a minority and the tendency towards the gradual adaptation of the general population to these innovations, allowing the widespread enjoyment of its benefits; another is the intervention (or not) of the public authorities towards the redistribution of income through the tax system and the provision of public goods. The clear decrease in inequality within national economies during some decades of the twentieth century seems to have been mainly the result of the second factor.

## Sector structure of the economy

The process of modern economic growth has triggered a very large change in the sector structure of the economy. Prior to its inception, most of labour force and other resources were used in the primary sector, that is to say, in activities of production of subsistence, namely in agriculture, while the secondary sector, that is to say, industrial activities, and tertiary production activities, that is to say, services, were clearly minorities. In a first phase of modern economic growth (which lasted until the first half of the twentieth century), the trend was towards an industrialization process, that is to say, the use of labour force and physical capital increased in industry, which became the most important economic activity, while primary sector activities became gradually less important than industry and services (except for the use of natural resources, especially land, where primary sector activities continued to be predominant). In a second phase of modern economic growth (which continued up to the present day), the tendency was towards a process of tertiarization, that is to say, the use of labour force increased in services, whose added value became the most important, while industrial activities became gradually less important than services (except for the use of physical capital, where the activities of the secondary sector continued to be predominant).

The explanation for these changes in the sector structure of the economy lies in part in the different sectorial incidence of the innovations that were the origin of the process of modern economic growth, with a different impact on the costs of the various sectors, their relative prices and their demand through mechanism of demand-price elasticity; but more important in this explanation is the impact of the increase in the average income of the population and the change in the demand profile that resulted from this increase. Indeed, as real income increases, the additional demand resulting from this increase in income will be directed successively to different types of goods and services through the demand-income elasticity mechanism, stimulating the growth of different sectors of economic activity.

As a result of the change in the sector structure of the economy, it can be said that the contemporary world economy that was formed following the process of modern economic growth is no longer a predatory economy (that is to say, one restricted to the exploitation of the spontaneous fertility of nature), or a cultivation economy (that is to say, one with artificial intensification of the spontaneous fertility of nature), as were the economies prior to the process of modern economic growth, but rather a transformation economy (that is to say, one based on systematic modification of products obtained from nature).

It is clear that these transformations of the sector structure had important particularities in each national economy in function of the rate of diffusion of the process of the modern economic growth, of its specific endowment of resources and of the consequent productive specialization in the international context.

[On this topic, see Box 2.4 – An example of changing sector structure of the economy]

## Modern economic growth and relevant economic areas

Another consequence of modern economic growth was the intensification of economic relations between the global economies, that is to say, between the practically self-sufficient spaces existing before the beginning of the process of modern economic growth, and between the partial economies existing in some of these global economies (those that were world-economies). This intensification of interregional and international economic relations led to the formation of what may be termed the contemporary world economy, that is to say, a single global economy encompassing all mankind. This process can be considered achieved at the end of the 19th century and can also be seen as a process of planetization of the Euro-Atlantic world-economy, since it was this economy that in most cases took the initiative to promote the intensification of economic relations at interregional and international levels. It is examined in more detail in the following chapters, especially chapters 4 and 5.

## Modern economic growth and economic systems

Economic systems have also changed profoundly following the process of modern economic growth, both in the organizational aspect of the economy, that is to say, in the type, number and size of economic units, and in the functioning aspect of the economy, that is to say, with respect to how economic units coordinate their plans.

[On this topic, see Box 2.5 – Economic systems]

## Modern economic growth and economic units

With regard to the organization of the economy, the process of modern economic growth was accompanied by major changes in economic units. These transformations have assumed the following main features:

• reduction of the relative importance of the units of artisanal type, which combined consumption and production functions;

• concomitant increase in the relative importance of family and firm units, specialized, respectively, in the function of consumption and the function of production;

• increase of the average size of firm units, accompanied by a concomitant tendency to increase the complexity of the internal organization and the financing schemes of its activities;

• enlargement of the degree and scope of State intervention in economic life, from situations of intervention restricted to the provision of pure public goods, to full planning of economic life, through varying levels and forms of provision of public goods of merit, the implementation of short- and long-term economic policies and the partial regulation of economic life;

• increasing of the importance of associations, both within the partial economies and in the context of the international economy, either bringing together individuals, or bringing together economic agents of family, firm and even state nature, in the latter case basically under the form of international economic organizations.

These transformations of economic units, and primarily the transformations of firm organizations, are given particular attention throughout the following chapters.

### Modern economic growth and the functioning of the economy

As regards the mode of operation, it should be noted that the market, which was the dominant mode of functioning of the Euro-Atlantic world-economy, insofar as it was a commercial world-economy, became the dominant mode of functioning of the contemporary world economy, largely because the contemporary world economy was formed by the process of planetization of the Euro-Atlantic world-economy. However, the predominance of market functioning was challenged throughout much of the twentieth century by attempts to create national economies functioning predominantly according to a centrally-planned scheme, a variant of the command functioning. This topic is developed further, particularly in chapters 6 and 7.

## Fundamental topics of Chapter 2

• Aggregate, structural and international characteristics of modern economic growth and their relationships.

• Main causes of modern economic growth and its characteristics and their relative importance.

• Economic systems and their transformation throughout the process of modern economic growth.

## Questions for reflection

• How to identify a highly developed country ?

[On this topic, see Box 2.6 – An example of identification of the degree of development]

• How to identify the existence of the process of modern economic growth in a country ?

[On this topic, see Box 2.7 – An example of identification a process of modern economic growth]

• Is it possible for a country to become highly developed without going through a process of modern economic growth ?

• Is it possible for a country to go through a process of modern economic growth and not to become highly developed ?

• To what extent is the process of modern economic growth a global process or a set of interrelated national processes ?

## Box 2.0 – Measurement of economic activity

As explained in the text, it is impossible to deal here with most of the complexities involved in the measurement of economic activity and its results, but a few points should be stressed.

As also explained in the text, economic activity consists in the use of natural, human and produced resources to produce goods in a broad sense; in the consumption of goods to satisfy human needs; and in the accumulation of goods to create the stock of accumulated resources. Thus, the level of economic activity may be assessed by the amount of resources used, by the amount of goods produced, or by the amount of goods used in consumption and accumulation.

The amount of resources used can be measured by the payments made to the owners of those resources for their use. In other words, the level of economic activity may be assessed by the income received by the owners of resources as a payment for their use.

The amount of goods produced can be measured by their value, according to their price in the market, from which it is necessary to deduce the value of intermediate goods used in their production. In other words, the level of economic activity may be assessed by the value added in the production of the goods.

The amount of goods used in consumption and accumulation can be measured by the payments made to acquire them. In other words, the level of economic activity may be assessed by the expenditure of economic agents in consumption and investment.

It is plain to see that these three ways of assessing the level of economic activity must reach the same result (income equals product or added value, which equals expenditure), once due account is made for a few technical points.

Besides the distinction between total value and added value, already noticed, the most important of these technical points relate to:

a) The distinction between gross investment and net investment (equal to gross investment less depreciation of existing means of production). Gross figures (gross investment, gross expenditure, gross product and gross income) are the most important concerning short term effects, because goods that replace depreciated means of production must result from effective economic activity. Net figures (net investment, net expenditure, net product and net income) are the most important concerning long term effects, because depreciated means of production cease to provide productive services. Anyway, the difficulty of assessing depreciation created the habit of focusing on gross figures, a fact that, incidentally, tended to obscure the destruction of natural resources, which is one of the biggest problems of today's economy, as will be considered in the text.

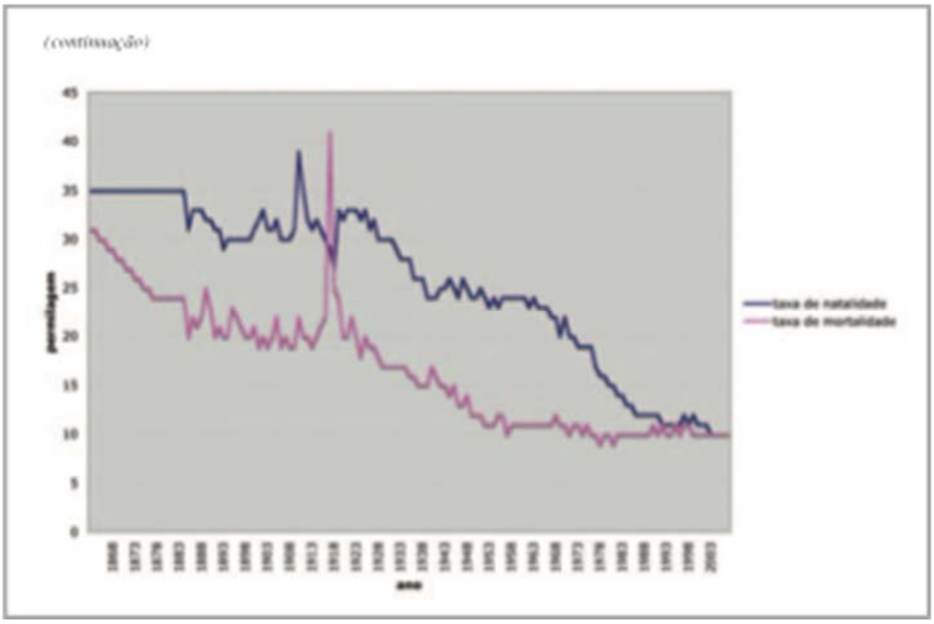
b) The distinction between economic activity carried on within the boundaries of a given space (usually a national economy) and economic activity carried on by the economic agents with residence in the same space. Of course, there is no difference for the world as a whole, and the difference is often minimal for many spaces (especially national economies). However, the difference may be significant for some spaces, especially as a consequence of foreign investment (a phenomenon to be considered in due course in the text). As a consequence, national income, national product and national expenditure (economic activity carried on by the economic agents with residence in the country) exceed domestic income, domestic product and domestic expenditure (economic activity carried on within the boundaries of the country) in countries with significant outward foreign investment; and domestic income, domestic product and domestic expenditure (economic activity carried on within the boundaries of the country) exceeds national income, national product and national expenditure (economic activity carried on by the economic agents with residence in the country) in countries with significant inward foreign investment.

## Box 2.1 – An example of demographic transition

The following chart illustrates the process of demographic transition in Portugal. Available data refer to the period between the mid-nineteenth century (when there had already occurred some decline in the mortality rate) and the beginning of the twenty-first century (when birth and death rates are clearly low and of a similar level). The exceptional mortality peak observed in 1918 was the consequence of the simultaneous occurrence of influenza and typhoid epidemics facilitated by the difficulties associated with the First World War.

### Graph 2.1 – Birth and death rates in Portugal 1864-2008

Source: graph drawn from data presented in Maria Eugénia Mata, Nuno Valério – The concise economic history of Portugal - a comprehensive guide, Lisbon: Almedina, 2011.

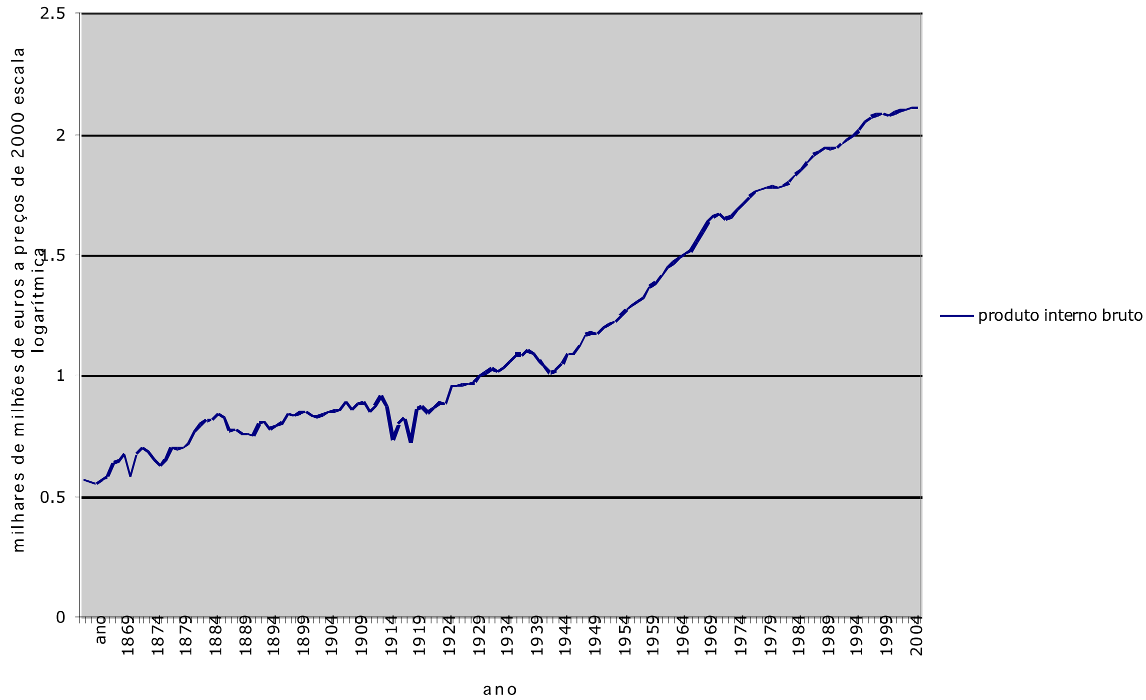


## Box 2.2 – An example of growth in economic activity and income

The following chart illustrates the process of modern economic growth in Portugal. Available data refer to the period between the mid-nineteenth century (when some economic growth began to take place) and the early 21st century (when the process of modern economic growth is consolidated). The exceptional economic downturns observed in the late 1910s and the early 1920s are explained by the difficulties associated with the First World War and the exceptional economic downturns of the mid-1940s with difficulties associated with the Second World War.

### Graph 2.2 – Gross domestic product of Portugal 1865-2008

Source: graph drawn from data presented in Maria Eugénia Mata, Nuno Valério, The concise economic history of Portugal - a comprehensive guide, Lisbon: Almedina, 2011.

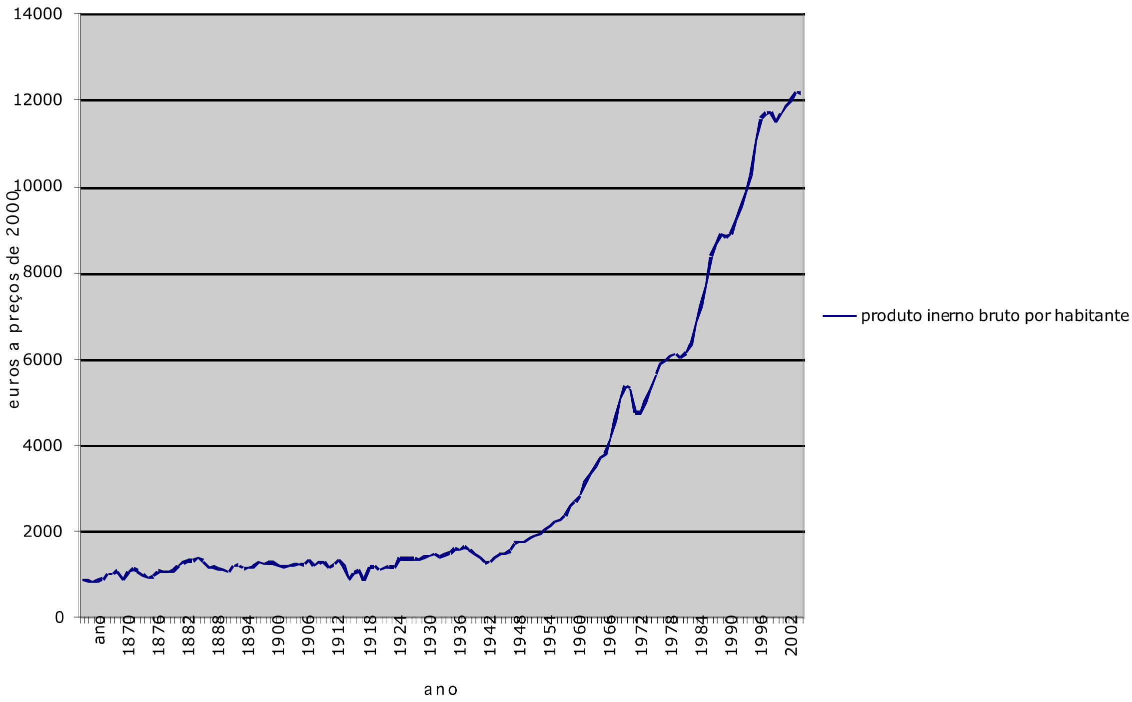


## Box 2.3 – An example of income per capita growth

The following graph illustrates the process of income per capita growth in Portugal. Available data refer to the period between the mid-nineteenth century (when some economic growth began to take place) and the early 21st century (when the process of modern economic growth is consolidated). The exceptional declines in economic activity in the late 1910s and early 1920s and again in the mid-1940s (as discussed in Box 2.2) naturally led to similar declines in the average standard of living.

### Graph 2.3 – Gross domestic product per capita of Portugal 1865-2008

Source: graph drawn from the data presented in Maria Eugénia Mata, Nuno Valério, The concise economic history of Portugal - a comprehensive guide, Lisbon: Almedina, 2011.



## Box 2.4 – An example of the change of the sector structure of the economy

The table below illustrates the process of the change of the sectorial structure of the economy in Portugal, breaking down labour force.

### Table 2.4.1 – Breakdown of the active population by sectors of activity in Portugal 1890-2011

Source: table drawn from the data presented in Maria Eugénia Mata, Nuno Valério, The concise economic history of Portugal - a comprehensive guide, Lisbon: Almedina, 2011 and the 2011 General Census of Population, accessed at www.ine.pt.

Unit: percentage of the total labour force.

| year | 1890 | 1900 | 1911 | 1930 | 1940 | 1950 | 1960 | 1970 | 1981 | 1991 | 2001 | 2011 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agriculture | 61 | 61 | 57 | 49 | 51 | 48 | 42 | 32 | 18 | 10 | 5 | 3 |
| Fishing | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | +0 | +0 |
| Mining and quarrying | +0 | +0 | +0 | +0 | 1 | 1 | 1 | +0 | +0 | +0 | +0 | +0 |
| Manufacturing industry | 18 | 19 | 22 | 14 | 15 | 19 | 21 | 24 | 26 | 26 | 22 | 16 |
| Construction and public works | (a) | (a) | (a) | 5 | 5 | 5 | 7 | 8 | 11 | 11 | 12 | 9 |
| Electricity, gas, water and sanitation | (a) | (a) | (a) | +0 | +0 | +0 | +0 | 1 | 1 | 1 | 1 | 1 |
| Transport and communications | 2 | 3 | 3 | 3 | 3 | 3 | 4 | 5 | 5 | 5 | 4 | 4 |
| Trade | 4 | 6 | 6 | 6 | 7 | 8 | 9 | 12 | 15 | 19 | 22 | 24 |
| Public administration and defence | 2 | 2 | 2 | 3 | 4 | 4 | 4 | 5 | 7 | 8 | 8 | 7 |
| services | 12 | 8 | 9 | 18 | 13 | 11 | 11 | 12 | 16 | 19 | 25 | 36 |

(a) Included in the manufacturing industry.

## Box 2.5 – Economic systems

An economic system can be defined as the way the organizational and the functioning aspects of an economy are articulated. One can define the mode of organization of an economy according to the structure of the economic units existing in that economy (that is to say, their type and size); and the way an economy functions as the way its economic units coordinate their activities. It is the articulation of the organizational and functioning aspects of an economy, that is to say, its economic system, that makes possible the accomplishment of the economic activity (that is to say, consumption, production and accumulation) by its economic units.

It is possible to develop a typology of the modes of organization of an economy based on the typology of economic units presented in section B of chapter 1 distinguishing:

• economies where self-consumption units (that is to say, units with no functional or sectorial specialization of economic activity, which are simultaneously production, consumption and accumulation units) predominate, – it is the case of non-sectoralized economies, either predatory or of the cultivation type;

• economies where units with sectorial specialization but without functional specialization of activities (which are simultaneously production, consumption and accumulation units) predominate – it is the case of sectorialized economies of the cultivation type;

• economies where units with both a sectorial and a functional specialization of economic activity predominate, that is to say, where there are, on the one hand, consumption (and accumulation) units, mainly of family type, on the other hand, production (and accumulation) units, mainly of firm type, and the state – it is the case of the sectoralized economy of transformation namely the contemporary world economy.

As for the modes of coordination of the activities of economic units of an economy, it is possible to distinguish three fundamental types:

• the routine mode of coordination, in which the compatibility of the activities of the economic units is obtained by the repetition of plans of activities already experienced in the past;

• the command mode of coordination in which the compatibility of the activities of the economic units is obtained by obeying a macro plan prepared by an economic authority, usually the authority that holds the political power;

• the market, in which the coordination of the activities of the economic units is achieved by the mechanisms of budget constraints at the level of each economic unit and of prices at the level of the relations between economic units in the various markets in the broad sense.

Routine and command modes of coordination predominated in most of the local economies, whether non-sectorialized, or sectoralized, predatory or of cultivation type, as well as tributary world-economies. Market coordination prevailed in the commercial world-economies and prevails in the contemporary world economy.

It should be emphasized that in concrete economies various modes of organization and functioning tend to coexist, though one predominates. In particular, the fact that the economic life of any society needs the provision of a minimum of public goods and market is unable to provide the provision of these public goods (for reasons explained in Box 1.4) implies that no economy, and particularly the contemporary world economy, may be a pure market economy. In fact, market has to be articulated with the existence of the state (or, more precisely, of the states of the various political spaces integrated in the contemporary world economy) and with the command mode of coordination, for the provision of public goods, as just referred.

## Box 2.6 – An example of identification of the degree of development

From an economic point of view, a country whose average income per capita significantly exceeds the world average can be classified as highly developed, a country whose average income per capita does not deviate significantly from the world average can be classified as medium-developed and a country whose average income per capita is significantly lower than the world average can be classified as having a low development level. The thresholds adopted are necessarily subject to some arbitrariness but, as a rule of thumb, a country whose average income per capita is more than one-and-a-half times the world average can be regarded as highly developed, a country with an average income per capita between one-and-a-half times the world average and half the world average can be regarded as medium-developed and a country whose average income per capita is less than half the world average can be regarded as having a low development level.

Consider, for example, the following table comparing the average income per capita of Portugal with the world average.

### Table 2.6.1 – Average income per capita in the world and Portugal

Source: Angus Maddison, The World Economy: a millennial perspective, Paris: OECD, 2001.

Unit – Dollars at 1990 prices.

| year | World | Portugal | ratio Portugal / World |
|---|---:|---:|---:|
| 1700 | 615 | 854 | 1.39 |
| 1820 | 667 | 963 | 1.44 |
| 1870 | 867 | 997 | 1.15 |
| 1913 | 1 510 | 1 244 | 0.82 |
| 1950 | 2 114 | 2 069 | 0.98 |
| 1973 | 4 104 | 7 343 | 1.80 |
| 1998 | 5 709 | 12 929 | 2.26 |

The analysis of the table shows that:

• before the process of modern economic growth, Portugal could be considered a moderately developed country (as a matter of fact, this was the situation of most countries that were part of world-economies); situations of what could be considered high development were very exceptional and situations of low development corresponded to societies whose way of life did not yet involve the regional or sectorial specialization of productions;

• throughout the nineteenth century, Portugal's relative situation deteriorated, but it never ceased to be a moderately developed country;

• during the second half of the twentieth century, this evolution was reversed, and Portugal became a highly developed country, a situation that has continued ever since.

It should be noted that the situations of countries which have reached a high degree of development in the context of modern economic growth and have lost that characteristic have historically been very rare. It is normal for a highly developed country to see its relative position deteriorate in the world context, but not to worsen the standard of living of its population, except in exceptional and transitory circumstances, such as those resulting from wars or serious crises.

It should also be noted that nowadays it is usual not to restrict the notion of development to the economic domain of social life and to include in it aspects relating to all domains of social life, for example:

• an average life, or life expectancy, which is high in demographic terms;

• a high level of population education in cultural terms;

• a democratic political regime in political terms.

## Box 2.7 – An example of identification of a process of modern economic growth

A process of modern economic growth in a national economy may be defined as the one in which that national economy presents for a long period of time a growth rate significantly above the world average. The thresholds adopted are necessarily subject to some arbitrariness, but, as a rule of thumb, a national economy which, since the eighteenth century, has been able to present a rate of cumulative annual growth of average per capita income greater than one-and-a-half times the world average for half a century may be considered as having experienced a process of modern economic growth (periods of significant growth of shorter duration allow the take-off, but not the consolidation of the process of modern economic growth; growth rates above the world average but close to it must prevail for longer periods to allow a structural transformation of the economy corresponding to modern economic growth).

Consider, for example, the following table comparing the growth rates of Portugal with the world average.

### Table 2.7.1 – Growth rates of the average per capita income of the world and of Portugal

Source: Angus Maddison, The World Economy: a millennial perspective, Paris: OECD, 2001.
Unit – Annual average growth rates percentage.

| period | World | Portugal | ratio Portugal / World |
|---|---|---|---|
| 1820-1870 | 0.53 | 0.07 | 0.13 |
| 1870-1913 | 1.30 | 0.52 | 0.40 |
| 1913-1950 | 0.91 | 1.39 | 1.52 |
| 1950-1973 | 2.93 | 5,66 | 1.93 |
| 1973-1998 | 1.33 | 2.29 | 1.72 |

The analysis of the table shows that:

• during the nineteenth century and the beginning of the twentieth century, the annual average growth rates of the average income per capita in Portugal were lower than the world average, so that Portugal clearly did not experience a process of modern economic growth;

• in the period between the two world wars, the annual average growth rates of the average income per capita in Portugal were roughly similar to the one and a half times the world average; thus, Portugal was on the threshold of starting a process of modern economic growth;

• during the second half of the twentieth century, the annual average growth rates of the average income per capita in Portugal were twice the world average, and Portugal clearly experienced a process of modern economic growth.

# 3 – The beginnings of modern economic growth (late eighteenth and early nineteenth century)

It is possible to identify the process of modern economic growth for the first time since the mid-eighteenth century, especially since the 1780s, in the more developed regions of the economic space defined in Chapter 1 as the Euro-Atlantic world-economy.

The beginnings of the process of modern economic growth were associated with technological and institutional transformations that favoured the predominance of market capitalism in the economic system. From a technological point of view, this involved the effects of the spread of continuous crop rotation, of the introduction of the steam engine, and of the progress in the construction of artificial transport routes, particularly canals and roads, and of the means of transport, particularly with the introduction of the steamship. From an institutional point of view, this involved the gradual strengthening of economic liberalism, that is to say, a framework of restricted intervention of public authorities in economic life, and the so-called enclosure process, that is to say, the subjection of the land to a regime of strict private property, with the disappearance of community property.

The main consequences of these developments in terms of firm structure and organization were the expansion of firms in productive sectors, particularly in the agricultural and industrial sectors, and in the latter, the expansion of the factory system, now based on production with machines. Firms that introduced and disseminated the main innovations at this early stage of modern economic growth were in any case still predominantly relatively small, individually owned or unlimited liability firms with a centralized and non-departmentalized internal organization.

## A – The technological framework of early modern economic growth

The technological framework of the early days of modern economic growth was fundamentally based on the continuous rotation of crops, the steam engine and the progress of artificial transport routes and means of transport.

### The continuous crop rotation

The main technological innovation in the primary sector of the economy in the early days of modern economic growth was the diffusion of continuous crop rotation schemes, which make it possible to overcome the need for fallowing, that is to say, the interruption of cultivation, as a form of soil regeneration. In practice, continuous crop rotation involves replacing the fallow period by the cultivation of species previously not inserted in the crop rotation scheme. More precisely, traditional rotation schemes, which alternate the cultivation of cereals with fallow periods, were replaced by schemes of rotation between cereals and fodder. This substitution has a dual advantage: on the one hand, forages introduced into the crop rotation scheme often have a direct regenerative effect on the soil; on the other hand, the availability of fodder allows an increase in cattle raising. This increase of cattle raising feeds back, in turn, on the regeneration of the soil, due to the increased availability of manure.

It should be noted that diffusion rather than introduction of schemes for the continuous rotation of crops is mentioned, because such schemes were not really a novelty in the eighteenth century, since they were already practiced in Northern Italy and the Netherlands, at least since the sixteenth century. Thus, what happened in the eighteenth century was an extension of its area of application, particularly in Great Britain.

The spread of crop rotation schemes also affected the quality of the tilling of the land, because the increased availability of fodder made it possible to increase the quality of livestock, both for transport and for farm work, in particularly with replacement of cattle by faster horses. At the same time, there was also some progress in the use of tools and other agricultural implements, thanks to the manufacture of a larger number of parts and pieces of metal, rather than the traditional use of wood. All of this allowed for additional productivity increases.

The full exploitation of the effects of these transformations implied changes in the organization of agricultural and livestock production. The rotation of crops with fallow periods was associated with the raising of grazing cattle in the parts of the fields left uncultivated, with the resulting natural manure, and the maintenance of the fields without permanent fences, so that the flocks could be moved without obstacles. The continuous rotation of crops forced cattle breeding to be preferentially carried out in a stall regime and the artificial processing of manure, even with natural manure; thus, it was related to the permanent fencing of the fields, which was one of the most important institutional innovations of the early modern economic growth epoch.

### The steam engine

The most important technological innovation linked to the beginning of modern economic growth was undoubtedly the steam engine, which became the technological symbol of what became known as the first industrial revolution.

The design of the steam engine and development of the first prototypes date back to the late 17th century and are due to Denis Papin and Thomas Savery. The first steam engine effectively used for economic purposes was built in 1712 by Thomas Newcomen and applied to water pumping from coal mines. The Newcomen steam engine could not be used extensively outside the coal mining sector because of its high fuel consumption and the high transport costs of coal. It was only after a more efficient version was introduced in 1769 by James Watt and a widening of the network of canals and roads that it was possible to use the steam engine as a supplier of power for general manufacturing facilities, although at first still mainly in the neighbourhood of coal mines.

The sector in which the use of the steam engine first spread was that of the textile industry, thanks to the introduction of spinning machines – by James Hargreaves in 1764, by Richard Arkwright in 1769 and by Samuel Crompton in 1779 – and weaving machines – by Edmund Cartwright in 1785 and William Radcliffe in 1804.

It should be noted that the easier adaptation of these innovations to working with cotton than to working with the more traditional fibres in Europe – wool, linen and even silk–- made the cotton textile industry the most dynamic. This has entailed a high dependence on supplies from outside Europe for the purchase of raw materials, since cotton can not be competitively grown on the continent. The possibility of expanding the areas from which fibre was imported also contributed to the expansion of this sector. At the time of the beginning of the modern economic growth, it was mainly the plantations of the American continent that were used to supply the raw material for the cotton industry. At the time, such plantations predominantly employed slave labour imported from sub-Saharan Africa. In this way a peculiar articulation arose between the expansion of capitalist industry in Northwest Europe and the consolidation of a slave society in the tropical regions of the Atlantic coast of the American continent. Initially, most of these regions were politically under the control of European states; the British colonies in south-eastern North America were particularly important in this context. Throughout the epoch of the beginning of modern economic growth, the majority of these territories became, however, politically independent from the European empires, namely the United States of America (in 1776), the Spanish colonies (between 1810 and 1830) and Brazil (in 1822).

As for the production of steam engines, it was dependent on the production of iron with low carbon as a raw material for most of its parts. The production of this raw material was facilitated by the introduction of the iron tuning process called puddling by Henry Cort in 1784.

### Hydraulic power

It should be noted, however, that a significant part of the manufacturing industry linked to the beginning of the process of modern economic growth has remained dependent on the traditional hydraulic energy, that is to say energy supplied by river currents, the use of which was also improved.

### The progress of artificial transportation routes and means of transport

The early stages of the process of modern economic growth were accompanied by some progress in transport, mainly due to the spread of artificial transportation routes, such as canals and roads, innovations in shipbuilding and the emergence of a new type of ship, the steamship.

## The canals and the roads

The main progress of transport concomitant with the beginnings of modern economic growth was undoubtedly due to the spread of artificial transportation routes, such as canals and roads, and to innovations in their construction.

The canals were of great importance due to the fact that the water transport was then much more efficient than the land transport, mainly because of the larger size of the vehicles and the lower cost of the energy used. In fact, while the largest land transport vehicle did not exceed the equivalent of less than a dozen gross register tonnes (1 gross register tonne is approximately equal to 2,832 cubic meters), the largest oceanic vessels reached and even exceeded one thousand gross register tonnes, and even boats used for inland waterway transport often reached more than a dozen gross register tonnes. On the other hand, waterborne transport often used free energy sources – wind and river or sea currents – and even when using paid energy sources – human in the rowboats and animal at the tow from the banks of the rivers – could do so more efficiently than land transport. For this reason, the extension of the river transport network by the construction of canals was a form of reducing the price of the internal transports. It is clear that the construction of canals had costs, which were, as a general rule, met by the payment of tolls; it also had geographical limitations because the territory could not be too hilly and climate had to be sufficiently rainy throughout the year to produce results. However, in regions where conditions were favourable, such as most of those where the process of modern economic growth began, the benefits could be considerable. In this context, the action of Francis Egerton (Duke of Bridgewater) as an entrepreneur of the first canals, built in the sixties of the eighteenth century, linking the coal mines he owned to the city of Manchester and then to Liverpool, and James Brindley as an engineer, introducing significant technological innovations in the construction of canals, in particular through the waterproofing coating of the channel slopes, was decisive.

Due to the greater efficiency of waterways, the importance of roads was generally lower than that of canals, except in regions where canals could not penetrate for topographic or climatic reasons. In any case, the roads also played their part in the first phase of modernization of transport associated with modern economic growth, especially thanks to the innovations in paving introduced by Pierre Trésaguet and John McAdam.

## The steamship

One of the first applications suggested for the steam engine, still in the prototype phase in the early eighteenth century, was the propulsion of ships. The idea was not accepted at the time by the British Navy to which it was proposed. Throughout the eighteenth century several steamship prototypes were constructed, but they did not have economic success. For this reason, it was only in the beginning of the 19th century that the steamship became an economic innovation, for application in river navigation. Robert Foulton on the Hudson River in the American state of New York in 1807 and Henry

Bell in the estuary of the Clyde River in Scotland in 1812 were the first entrepreneurs to succeed with such an innovation.

The sailing vessel had an obvious advantage over the steamship: its source of energy was free; in addition, the fuel occupied storage space, which had to be withdrawn from the space useful for the carriage of goods or passengers. As a result, the steamship was able to diffuse somewhat rapidly in river navigation, and even in coastal navigation, where refuelling could be frequent, and therefore the loss of space for fuel storage was reduced; but it took a long time to become prominent on maritime transport, especially in transoceanic shipping, where refuelling could not be frequent. It was not until 1819 that the first transatlantic voyage with partial use of steam was carried out on a mixed steamer; it was not until 1827 that the first transatlantic voyage was carried out with the exclusive use of steam; and it was only in the late 1830s that the first steam-powered transatlantic careers were created, which still took a few decades to completely replace careers using sailboats.

## B – The institutional framework of the beginnings of modern economic growth

The institutional framework of the early days of modern economic growth was fundamentally based on the gradual strengthening of economic liberalism and the process of land enclosure.

### Economic liberalism

The transformations that triggered modern economic growth were accompanied by profound changes in the political and cultural domain of social life which, in turn, also had repercussions in the economic domain. In this context, the attitude of the economic agents towards economic activity and its transformation was deeply marked by a liberal and individualistic culture. Liberal, as minimal state regulation and interference in the (supposedly free and competitive) functioning of markets came to be seen as favourable to economic prosperity. Individualistic, insofar as individual capacity and effort came to be seen as the foundation of each person's social and economic situation.

From the point of view of social stratification, this meant a loss of importance of the traditional stratification into orders, with a legal base, and an increased importance of class stratification, with an economic base. Wealth based on work, savings, and ingenuity ideally became the quintessential source of ascension and social mobility in general. Politically, this meant replacing regimes based on the inheritance of power by regimes based on the choice of holders of political power by election made by an increasingly broader section of society. Aristocratic monarchies and oligarchies thus tended to give way to economic-based oligarchies and later to democratic liberal regimes. From an economic point of view, this meant abandoning protection and eventual state privilege as the basis for the creation and expansion of business and the search for freedom of action at national and even international level as the ideal context for its creation and expansion.

However, legal protection of property, including intellectual property, has remained an expected function of the state; and the prospect of profiting from patent income was undoubtedly relevant to the innovative initiative of entrepreneurs and technicians.

Compatible with this ideology and with this business ethic was the opening to family networks, religious communities and other networks of local and regional sociability in the division of responsibilities in financing, recruitment and management, allowing the reduction of transaction costs, in a context of relatively high risk, coupled with the limitations of means of transportation and, in particular, communication.

[On this topic, see Box 3.1 – Social stratification]

[On this topic, see Box 3.2 – Political regimes]

### The process of land enclosure

The process of land enclosure basically involved subjecting land to a regime of strict private property, with the disappearance of community property and restrictions on the use of private property.

This process of systematic and permanent enclosure of the fields forced the abandonment of old community practices, which reduced the incentive to introduce innovations, allowing the total private appropriation of the gains resulting from these innovations. It can be said that it was the possibility of total private appropriation of the gains resulting from the innovations that led to the emergence of a significant number of firms in the agricultural sector, or, equivalently, that led to the significant penetration of the capitalist organization of production in the primary sector.

### Critical perspectives on market capitalism and the beginnings of workers' unionism

The process of modern economic growth and the concomitant extension of the capitalist mode of organization and of market functioning have, from their earliest beginnings, elicited critical views. Initially, these critical views almost exclusively assumed a traditionalist perspective, proposing a return to the institutions prevailing before modern economic growth as a remedy for what they considered to be the negative aspects of the new society. This type of perspective encompasses the hostility to machines as harmful to jobs, hostility that in some cases triggered the physical destruction of machines.

Moreover, the ideological ascendancy of liberalism and the political dominance of the business bourgeoisie led to a tendency towards the disappearance of the traditional artisan corporations in the early days of modern economic growth and their natural replacement by workers' associations precursor of workers' unionism, which faced social hostility and even legal prohibition in some cases.

## C – Business and firms in the early days of modern economic growth

The technological and institutional innovations synthesized in the previous sections created a framework that allowed the development of business and firms on a previously unknown scale and the introduction of some organizational innovations.

### Penetration of capitalism in agriculture

The markets for agricultural and livestock products have never ceased to be almost perfect competition markets in this period, owing to the large number of producers of each good and the homogeneity of these goods. The capitalist firms that emerged in the primary sector of the economy were therefore relatively simple firms, with a single productive unit, a farm, typically individual property and a centralized, non-departmentalized organization structure, naturally managed by the owner. In the meantime, however, there were situations in which the landowner rented it to businessmen who established capitalist exploitation on their own account.

It should be emphasized that the technological and institutional changes in agriculture were decisive for the take-off of modern economic growth, as it was in the field of food availability that the fundamental obstacles to a significant growth of the economy occurred. In fact, traditional levels of productivity in subsistence-producing activities obliged a majority of available resources, such as human resources, to be allocated to these activities, without which the survival needs of the members of the society in general would not be met. With the increase of productivity allowed by the transformations of agriculture described above, it was possible to reallocate resources to other sectors. In particular, it was possible to release human resources to be used in the urban world, especially in industrial activity.

### The new industrial organization: expansion of the factory system based on machines

The reallocation of resources to industry owing to the changes in agriculture would have allowed, whatever other circumstances, a significant increase in the production of the manufacturing industry; and, for reasons related to the higher demand for goods to meet the need for clothing, given the level of income reached by the population in the regions where this process of modern economic growth was taking place, this increase would tend to occur mainly in the textile industry. However, the technological innovations described above have greatly amplified this expansion of the manufacturing industry, especially the textile industry, and had as its main organizational consequences the progress of factory system over other previously existing organizational forms, and the introduction and progress of machines by replacing other forms of factory capitalist industry.

These changes were mainly a consequence of the competitive advantages provided by the cost reductions allowed by the simultaneous use, for the various productive operations, of the energy supplied by a steam engine, whose impulse was transmitted to the whole factory building by transmission belts. It is curious to note how the above-mentioned progress of cattle raising favoured the supply of the raw material for the leather industry, which produced the transmission belts, the fundamental element of the first modern industrial factories.

It is clear that to take advantage of the cost reductions allowed by the use of the energy supplied by a steam engine implied concentrating the productive operations in one place – hence the introduction of the steam engine promoted the progress of the factory capitalist industry; and it is clear that the full use of these cost reductions was only achieved by introducing machines which would be impossible to move with traditional energy sources and by using these machines almost continuously – hence the introduction of the steam engine promoted the introduction and the progress of production with machines, supported by another organizational innovation, shift work, in order to take advantage of the steady flow of energy from the steam engine and to avoid the somewhat high cost of its frequent shutdown and start-up. This organizational innovation has, in turn, led to the need for more efficient forms of artificial lighting than traditional fat burning. The answer to this problem was obtained by the use of the so-called lighting gas, a derivative of coal itself, introduced in the late eighteenth century.

Energy constraints, such as the need to centrally supply energy, not only led to the concentration of production in one place, the factory, but also conditioned the architectural structure of the buildings in which the plant was installed, favouring open interior space, with the additional advantage of facilitating supervision of the production process. On the other hand, the energy availability tended to be decisive in the location of the factories, due to the dependence of the coal supply. In fact, since coal was a heavy material with a low unit value, it was not profitable to use it far from its source, especially without roads and reasonably efficient means of transport. Hence the traditional preference for charcoal, despite its lower energy efficiency, which made it unusable on steam engines, and the problems of deforestation it tended to cause; hence the fact, already noted above, that the steam engine could only be used on a large scale, outside the coal mines, when a certain threshold of efficiency in fuel consumption was reached; hence the crucial role that the development of transport, in particular through the canals and roads (and later, as discussed in the next chapter, of the railways), had to diffuse the new model of industrial production; hence the significant geographic concentration of factories and the formation of what may be termed industrial districts in regions rich in coal mines (for instance, the Lancashire and Yorkshire regions in Great Britain or Wallonia in what is now Belgium).

### Types of markets and firms

These facts did not, however, change the predominant market type in the markets most deeply touched by these changes, in particular the markets for textile goods. These markets continued to be, as previously, almost perfect competition markets, that is to say, markets where a very large number of small firms competed, without the emergence of leading firms. This is fundamentally a consequence of maintaining a cost structure in which the variable costs, associated with the need for working capital, weighed more than the fixed costs associated with the need for fixed capital. As a result, there were no significant barriers to the entry of new firms into the market. On the other hand, textile products have maintained a homogeneity, particularly in the range of consumer products, which has prevented the emergence of brand preference phenomena.

All this contributed to the fact that the typical firm of this usually called first phase of the first industrial revolution was a firm of relatively small size, in particular not exceeding a few tens of workers, with a single productive unit and, therefore, maintaining the traditional legal and organizational forms.

As regards the legal forms, these were individual firms or firms with unlimited liability. It should be noted that the limitations to the formation of limited liability companies, generally introduced or strengthened in the early eighteenth century, particularly in relation to the speculative bubble of the late 1710s, as referred to in chapter 1, also made it difficult to adopt other legal forms in most of the European countries until the middle of the nineteenth century.

As far as organizational forms were concerned, these were centralized and non-departmentalized firms, in which the owners were involved at all levels of management: strategic management, as an exclusive task; functional management, with the support of a small number of clerks, whose training was predominantly learning-by-doing (not school) and whose responsibility was usually focused on technical questions and accounts; and the operational management, with the support of overseers of worker origin.

[In this topic, see Box 3.3 – Centralized and non-departmentalized company]

## The organization of transport

The organization of capitalist transport firms was traditionally more complex than that of industrial capitalist firms, because of the requirements they face due to the various locations among which transportation takes place. Furthermore, the firms involved in introducing the innovations in the transport sector mentioned above had a cost structure and a service specificity that was totally different from the characteristics of the typical industrial firm of the same period. In fact, on the one hand, the proportion of fixed capital accounted for most of its costs, due to the work that needed to be done for the construction of canals and roads and the weight of the cost of the steam engine on the overall cost of steamboats, creating significant barriers to the entry of new competitors into the activity; on the other hand, the specificity of the location of artificial communication routes created situations of natural monopoly. For this reason, the firms linked to these innovations in transport have, from their earliest days, had a more complex internal organization than the majority of companies in the industrial sector, especially displaying a more pronounced departmentalization.

[On this topic, see Box 3.4 – Market, monopoly and competition]

## The financing

Financing of the innovations examined earlier placed different requirements across sectors.

In agriculture, the introduction of crop rotation and the land enclosure process could rely almost exclusively on self-financing and informal credit.

In industry, the introduction of machines and the progress of the factory system required the combination of long-term informal credit or self-financing with short-term bank credit. It was in this area that the development of commercial banking was particularly crucial.

Transport, more precisely the development and spread of artificial communication routes, namely canals and roads, and the use of the steamship, was the sector that most requested the capital market for financing.

## Self-financing

The self-financing of capitalist firms requires the possession of previous wealth or the reinvestment of profits. The first situation was certainly decisive in the creation of capitalist firms in agriculture and could also play an important role in starting the construction of the first major canals in Great Britain, owing to the great personal fortune of Francis Egerton (Duke of Bridgewater), its promoter. The second situation was crucial in the functioning of capitalist firms in all sectors, particularly industry.

The limitations of self-financing are, however, obvious. The development of a capitalist economy was never possible without relying on credit.

## Informal credit

Informal long-term credit to capitalist ventures relies on the existence of networks of social trust that allow potential lenders to have collateral not related to the fortunes of borrowers and to potential borrowers to obtain conditions that are compatible with the characteristics of the business they intend to initiate.

In the take off of modern economic growth, this role was played by family networks, where trust is based on kinship ties, and by networks of a religious nature, where trust is based on belonging to the same minority. It is also mentioned the role sometimes played by local notables in the relation between lenders and borrowers, as well as informal assessors of loans.

## The commercial bank

The development of commercial banking was crucial to the development of capitalist industry in the early stages of modern economic growth because the short-term financing of working capital was typically carried through short-term bank credit.

The activity of a commercial bank was based on obtaining funds by means of the reception of sight deposits, that is to say, transferable and recoverable at any moment, and in the realization of loans by the discount of commercial bills, that is to say, short-term (typically ninety days) orders of payment drawn by suppliers and accepted by buyers in exchange for the delivery of goods. It was thus possible to finance the working capital needs, whose turnover did not exceed the term of the bill.

### The capital market

The importance of the capital market, that is to say, the issue of shares and bonds and its transaction, was clearly less than that of the other forms of financing referred to in the context of the early modern economic growth process. The main cause of this has already been mentioned above: the limits to the establishment of limited liability firms, partially legal limitations, partly resulting from a mentality that was deeply marked by the speculative bubble of the second decade of the XVIII century.

In any case, the late eighteenth century was marked by a relevant activity, related to the most intense period of construction of artificial transport routes, canals and roads. Funding through the capital market was therefore of some importance in this type of business. This increased relevance of the capital market implied the beginning of a process of institutionalization of the places dedicated to financial transactions, that is to say, to the appearance of the modern stock exchanges.

## D – Other aspects of the early modern economic growth

To conclude this perspective on the beginnings of modern economic growth, it is important to make some additional observations, particularly in relation to sector, geographic and short-term aspects.

### The slowness of transformations

Perhaps the most important additional observation that is important to make about the beginnings of modern economic growth is to underline the slow diffusion of the process in sector and spatial terms.

It is true that the expansion of the factory system using machinery was, in a certain sense, inexorable, due to the productivity gains that the system allowed, either for technological reasons (mainly due to the use of mechanization itself and new sources of energy and increase in speed and regularity of production) or for organizational reasons (mainly due to better supervision of the production process and consequent reduction of waste in the use of raw materials and goods held in stock). The reduction of transaction costs, namely information costs (especially for better control of product quality and performance of labour), were equally decisive. However, traditional production systems persisted in many sectors and regions for quite some time, revealing that the relative advantages of the new system took time to become prevalent. Even in the context of the cotton textile industry, which led the introduction of new technologies, the diachrony of technological innovation in the different phases of the same production process (especially the late mechanization of weaving and above all confectionery in comparison to spinning, favoured the fragmentation of production processes, even after the total mechanization of some of its phases. This fragmentation of production processes, coupled with the low labour costs and the low fixed costs of the domestic system and the very fall of transportation costs associated with the beginnings of modern economic growth, maintained the competitiveness of the domestic system and even of artisanal production in many cases (in practice, the domestic system lasted longer in the weaving business, and the artisanal production framed by the traditional corporate system lasted longer in the confectionery activity, whereas the spinning activity was mechanized earlier). The use of traditional energies, especially hydraulic power, allowed, in many cases, the mechanization of productive processes without using the steam engine, as pointed out above. For this reason, the mechanization of weaving using the steam engine was only clearly established in the middle of the 19th century.

## The geographical impact of the early days of modern economic growth

As pointed out in the introduction to this chapter, the major innovations of the early days of modern economic growth spread only significantly to some parts of North-West Europe. Its repercussions have however been felt in much larger areas, as already exemplified above by the impact of the demand for raw cotton from the tropical regions of the American continent. Strictly speaking, the whole Euro-Atlantic world-economy was affected, as the fact that the British economy was the early national economy in which the process of modern economic growth spread led to a strengthening of British hegemony in this economic space; and the whole of humankind was affected as the potential opened up by modern economic growth enabled an eventual expansion of the area covered by the Euro-Atlantic world economy, corresponding to the definitive start of what can be called its process of planetization, as will be seen in the following chapters.

## The short time evolution

The introduction and diffusion of innovations provided not only a direct but also an indirect stimulus to economic activity, which triggered periods of expansion, which in a sense were at the heart of the process of modern economic growth. At the same time, however, it was found that periods of crisis, recession, and even depression, of economic activity, as a result of the exhaustion of the dynamic effects of the diffusion of innovations, occurred. Modern economic growth has thus been traced back to its beginnings by fluctuations in the level of economic activity, quite different from the typical fluctuations of previously existing economies, in which fluctuations in economic activity predominantly had natural or extra-economic causes, mainly due to harvests fluctuations resulting from meteorological reasons, population breakdowns resulting from epidemics and disturbances of social life resulting from wars.

[On this topic, see Box 3.5 – Economic fluctuations]

It should be noted, however, that, in addition to differences of origin, economic fluctuations involved in a process of modern economic growth have another characteristic that distinguishes them from traditional economic fluctuations. As the innovations that were at the basis of the expansion phases are not abandoned during the later phases of crisis, recession, or depression, the economy that emerges from an economic cycle of expansion and retreat of economic activity is not structurally equal to the one that existed before; it has increased its potential thanks to the diffusion of innovations that have fed previous expansion phases. This is what makes modern economic growth a process of sustained growth, that is to say, a process in which the levels of economic activity at the end of a cycle are higher than the levels of economic activity at the outset, regardless of the setbacks that may have happened; and also a process of development, that is to say, of structural transformation, of the economy.

It is not necessary here to discuss in detail the concrete fluctuations that occurred in the decades of the eighteenth century in which the main innovations evoked above were introduced in the regions where the process of modern economic growth started. It should be noted, however, that the last decade of the eighteenth century and the first decade and a half of the nineteenth century were marked by more or less permanent conflicts between the major European powers (the so-called wars of revolution and empire, in which France attempted to establish its hegemony over Europe, following the political changes brought about by the revolution of 1789 against absolute monarchy and the subsequent convulsions that led to the rise to power of Emperor Napoleon Bonaparte in 1804). It has been stressed that the victory of Britain and its allies against France in this conflict relied heavily on the economic potential created by the beginnings of modern economic growth in Britain.

The period that followed the end of the wars of revolution and empire was a period of less economic dynamism than before. Some time later, however, other innovations and the process of planetization of the Euro-Atlantic world-economy, that is to say, the process of absorption of other economic spaces by this world-economy, triggered a new phase of significant expansion of economic activity.

## Key topics of Chapter 3

• Technological and institutional innovations that triggered the start of modern economic growth and relations between them.

• Reasons why the firms that made the innovations that triggered the start of modern economic growth were relatively small with relatively simple internal organization (centralized and non-departmentalized).

• Financing of the take-off of modern economic growth, particularly the role of commercial banks in the process, and its causes.

• Market concept and distinction between competition and monopoly markets and between natural monopolies and legal monopolies.

• Differences between the typical economic fluctuations of the economies prior to modern economic growth and the typical economic fluctuations of the era of modern economic growth and the causes of these differences.

## Questions for reflection

• What factors explain why the rise of modern economic growth has taken place in countries at the core of the Euro-Atlantic world-economy and not in other countries of this economy or in societies with tributary world-economies, local cultivation economies or local predatory economies ?

• What is the relative importance of factors related to supply (for instance, technological innovations) and demand (for instance, consumer needs) in explaining the dominant role of the textile sector in the so-called first phase of the first industrial revolution ?

• Britain was the first country in the world where more than half of the population had urban residence and London was the first city in the world to exceed 1 million inhabitants. How do these facts relate to the fact that Britain was the early comer to the process of modern economic growth ?

• What care should be taken in using the term industrial revolution, taking into account its context in the process of modern economic growth and the sector impact of this process ?

• How to explain the coexistence of different organizational systems in the industrial sector ?

## Box 3.1 – Social stratification

Social stratification is the division of the society into social groups between which a formal or informal hierarchy is established.

In societies prior to the process of modern economic growth, social stratification and the hierarchy associated with it were usually formal. The legal regime itself determined the social group to which each member of the society belonged and the different rights and duties that this social status implied. This legally determined social stratification is called social stratification into orders. Traditionally, in European societies there were the orders of the clergy, the nobility and the people, and from the latter group could be distinguished, by negative discrimination, religious minority groups and even persons who were legally slaves. In other regions of the world, formal social stratification was even more rigid. Particularly in India, formal social stratification assumed a religious character, giving rise to groups called castes.

The process of modern economic growth was generally accompanied by the disappearance of social stratification into orders. This institutional change freed economic agents from many legal constraints in their quest for the highest income and the best standard of living possible. It is, therefore, in accordance with the operational needs of a capitalist market economy and with the liberal and individualistic mentality associated with it.

It is clear that the disappearance of social orders did not make social stratification disappear. However, this stratification has been mainly informal and based on the different relations of each member of society with the means of production and the level of income that each member of society obtains as a consequence of the economic activity he develops. This informal social stratification is called social stratification into classes.

## Box 3.2 – Political regimes

Societies prior to the process of modern economic growth generally had political regimes based on the heredity of the heads of state, that is, monarchies, or on the choice of rulers by a privileged social group, usually an aristocratic social order.

The process of modern economic growth (and the concomitant disappearance of the social stratification into orders referred to in Box 3.1) was accompanied by a tendency for political regimes to change. Monarchies ceased to be effective forms of government (absolute monarchies) and formal aristocratic privileges were abolished, one and the other replaced by regimes in which rulers are chosen by voting of an increasingly broader constituency. Initially the suffrage was generally masculine, that is, only men had the right to vote; only persons with an income above a threshold were entitled to vote; and only persons with a level of education above a minimum threshold had the right to vote. Over time, these liberal regimes have evolved into what is now considered a typical democratic regime: a regime in which the rulers are chosen by universal suffrage, that is to say, one in which the restrictions of gender, income and education disappeared and only age and social dignity restrictions (excluding persons convicted of certain offences) have normally remained. From the formal point of view, some liberal and democratic regimes preserved a hereditary head of state (constitutional monarchies), but the tendency was for the generalization of regimes with elected heads of state (republics).

## Box 3.3 – Centralized and non-departmentalized firm

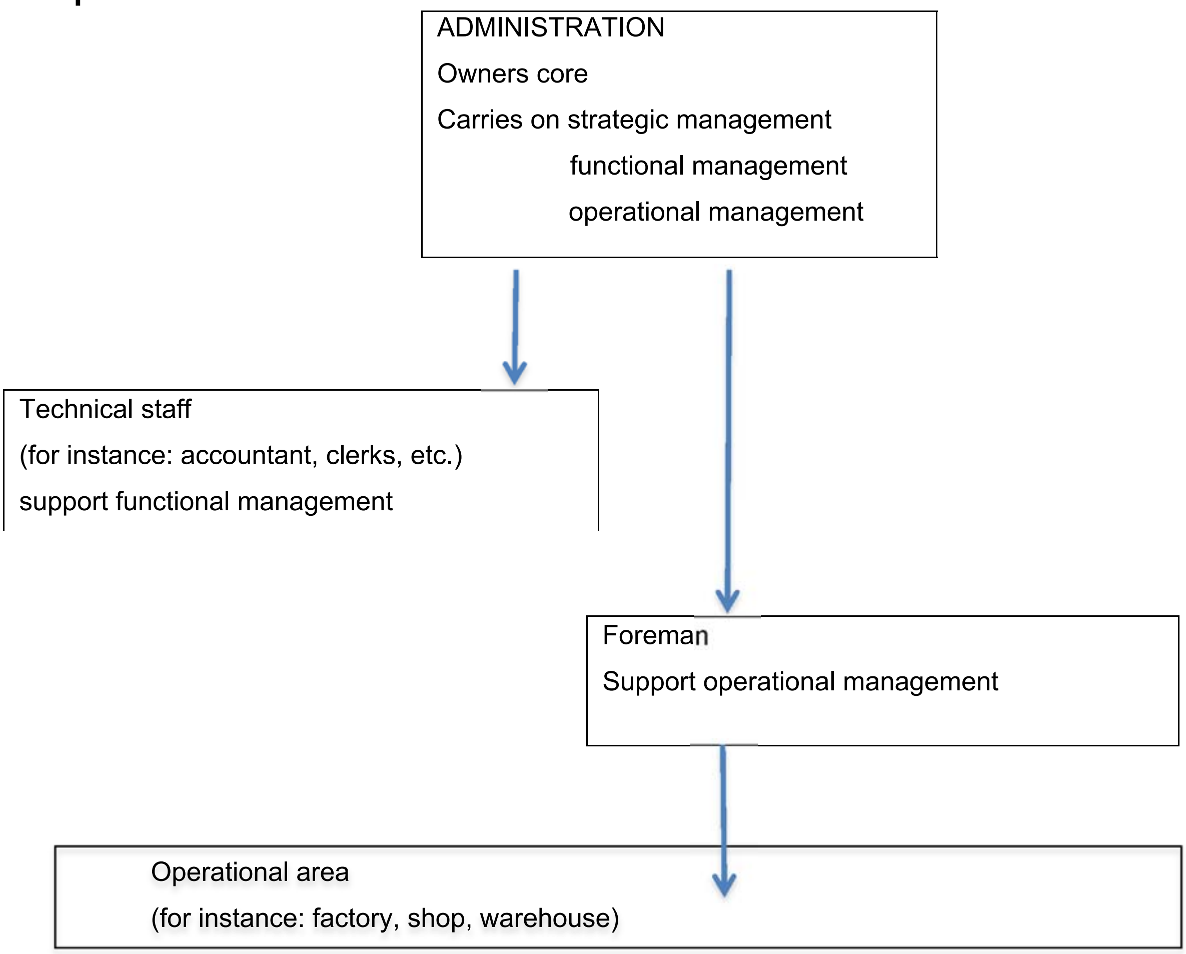
A centralized and non-departmentalized firm is characterized by the existence of a single hierarchical level of managers (managers who are usually the owner, owners, or some of the firm's owners). These managers are responsible for the strategic level of management and control the functional domain of management, usually with the assistance of a limited number of technical staff, and the operational domain of management, usually through foremen of workers' origin.

As explained in the chapter text, this type of business is usually associated with a small size and a single productive unit, producing and selling a single type of product.

From the point of view of the typology presented in box 5.7, this is usually a personal firm, possibly a family business, in the early stages of its development.

In these circumstances, the typical organizational chart of a centralized non-departmentalized firm can be represented by figure 3.1.

**Figure 3.1 – Typical organizational chart of a centralized and non departmentalized firm**



## Box 3.4 – Market, monopoly and competition

A market is a set of transactions on similar objects, that is to say, purchases and sales of the same commodity, purchases and sales of the same type of financial assets, loans, insurance for the same type of events, etc.

It is clear that the various transactions carried out in the same market influence each other, in particular as regards the determination of the total quantity of transactions brought about and the price at which they are settled.

In a given market, there may be a single supplier of the good to which that market relates, in which case the market is said to be in a monopoly, or there may be several suppliers of the good to which that market relates, in which case the market is said to be a competitive one.

A monopoly situation can result from market mechanisms, then referred as a natural monopoly, or from the imposition of public powers, then referred as a legal monopoly. A natural monopoly situation arises when there is a decreasing average cost in the production of any relevant quantity in terms of demand. As a consequence of this, the existence of two firms producing and selling the good in competition with each other implies a rise in the average cost and therefore of the selling price to any relevant quantity. Natural monopoly situations are generally caused by the existence of very high fixed costs when compared to variable costs. This is what happens in cases such as those in which it is necessary for starting the activity, to establish infrastructure networks whose cost of construction far exceeds that of operation. The activities of distribution of water or electricity in a given region are considered classic cases of natural monopoly.

Monopoly situations give the sole supplier of the good the ability to influence the total number of transactions that are made and the price at which transactions are settled. This capacity is called market power.

Competition situations necessarily imply less market power for competitors than in monopoly situations. If the market power is very small, it is said that the market is in a situation of almost perfect competition. If market power is significant, it is said that the market is in a situation of imperfect competition. Oligopoly markets are markets with imperfect competition of particular importance, which are given special consideration in subsequent chapters.

## Box 3.5 – Economic fluctuations

As suggested in the text, economic fluctuations of the economies prior to the process of modern economic growth had above all natural causes (such as meteorological fluctuations or epidemics) or extra-economic ones (such as disturbances resulting from war or social conflicts).

These causes for the existence of economic fluctuations did not disappear with the process of modern economic growth. They have, however, become clearly less important, with the exception of major military conflicts, to which reference is made in the proper place. However, with the very process of modern economic growth, other causes of economic fluctuations have arisen, which have been the subject of consideration and controversy in the field of economic science.

It may be said that there are two fundamental explanations for the new type of economic fluctuations arising from the very process of modern economic growth. One is the monetary explanation, which attributes the expansion and contraction of economic activity to the expansion and contraction of the quantity of money in circulation. Another is the real explanation, which attributes the expansion and contraction of economic activity to the successful introduction and diffusion of innovations (that is to say, the positive response of demand to new products introduced by innovations or the decline in prices of already existing products that innovations allow) and the exhaustion of these innovations (that is to say, the slow down of growth or even the reduction of demand resulting from the relative satiation of needs met by goods whose additional consumption allowed the previous expansion of economic activity). The real explanation of economic fluctuations is privileged in the analysis made in this text. This means that the process of modern economic growth and its fluctuations have a common origin – innovations – which on the one hand have a permanent impact on increasing productive capacity and changing the structure of the economy, generating modern economic growth, and on the other hand, have a transitory impact on the increase in global demand, generating periods of expansion, followed by periods of crisis, recession and even depression of economic activity.

The question of the regularity of the period and extent of economic fluctuations is taken up in Box 4.5.

# 4 – Consolidation of modern economic growth (mid-nineteenth century)

The process of modern economic growth consolidated between the 30s and 70s of the nineteenth century thanks to the deepening and spread in terms of both the economic sectors and geography of the transformations examined in the previous chapter.

These processes of deepening and spread were based on technological innovations, such as the appearance of the railroad and the telegraph, and on institutional innovations such as free trade and the opening up of regions of the world that had been relatively closed to the relations with the Euro-Atlantic world-economy. These new developments led to changes in the business environment due to the emergence of new sectors in the economy, such as the railway sector and the investment banking sector, and the demands in terms of the organizational forms that these sectors have placed.

## A – The technological framework for consolidating modern economic growth

Two innovations dominated the technological landscape of the era of consolidation of modern economic growth: the railroad and the telegraph. However, other important transformations were observed at the same time in other sectors of the economy, such as the mechanization of agriculture, progress in several industrial sectors, such as steel and chemistry, the first experiences of industrial production with interchangeable components along an assembly line, the diffusion of the steamship in ocean transport and the construction of interoceanic canals.

### The railway

From a technological point of view, the railway is the combination of two innovations: the use of a layer made of iron rails to facilitate the movement of vehicles (with the obvious disadvantage of conditioning this movement to the paths where the rails are installed); and the use of the steam engine as the motor of a vehicle. Both innovations had preceded in several decades their simultaneous use in the railroad: the layer of iron rails was used in the movement of wagons especially in mines by animal or human traction; the steam engine was used as a ship's engine. It was George Stephenson who for the first time successfully combined the two innovations, first in mine lines since the third decade of the nineteenth century, then linking Manchester and Liverpool (curiously, one of the linkages where had already been built one of the first canals some decades before) in 1830.

The following decades witnessed the rapid diffusion of this innovation, a phenomenon that must be understood in the context of the transformations that it implied and its spill-over effect throughout the economy.

## The railways and the transformation of land transport

The main novelty of the railways in terms of impact on the economy as a whole was the creation of a mode of transport in land of comparable efficiency to water transport. In fact, the appearance of the railroad has eliminated the gap between land transport and water transport in terms of cargo handling capacity and of the inherent cost (a gap explained in the previous chapter). Until the onset of the railways, water transport was, where available, generally preferable to inland transport, even when it involved some additional risk, such as in cabotage shipping, or a higher fixed cost, as was the case, for example in transportation by canal boat. From the onset of the railroad, there was a means of transport in land capable of competing with the water transport and of extending this more efficient transport to regions where the water transport was unable to penetrate for topographic or climatic reasons.

As a result of the appearance of the railway, internal long-distance transport was preferentially ensured by the new railway sector, while the roads were confined to a function of local auxiliary traffic routes and canals and navigation tended to gradually lose any role in this area, except in very favourable locations.

## The telegraph

The sector that underwent perhaps the most radical transformation in this period was that of communications, with the introduction of the first means of communication not dependent on any means of transport (and faster than any means of transport) – the electric telegraph, an invention of Pavel Schilling in the 1830s, especially after the improvements introduced by Samuel Morse in the following decade.

The diffusion of the electric telegraph began naturally on extensions of land, but soon it began to overcome the obstacles created by maritime and oceanic extensions by submarine cables – the first was established between Dover in Great Britain and Calais in France in 1851; the first transatlantic connection was established in 1866; and in the following decades it can be said that a global communications network was gradually built up by the electric telegraph, based on the aerial and underground equipment in the land areas and the submarine cable in the intercontinental links.

## The transformations of agriculture

The main novelties introduced in the agriculture sector in the mid-nineteenth century were the mechanization and the use of natural fertilizers.

The early mechanization of agriculture covered only operations at fixed places (for instance, threshing of cereals) and not the cultivation of the fields themselves. This was due to the fact that there was no efficient ground vehicle at the time that did not run on rails, making it difficult to use machines in field tasks in general.

The use of natural fertilizers was basically possible as a result of the progress of ocean transport, which facilitated the use of guano, mainly from the deserts of the west coast of South America, for soil fertilization in Europe.

## The transformations in industry

The steel industry was the most dynamic sector during what may be called the second phase of the first industrial revolution (the designation seeks to underline the continuity of the roles of the steam engine and coal in relation to the early days of modern economic growth). This dynamism was in part a result of the demand for materials for the production of investment goods for most sectors of the economy and partly as a result of the emergence of important innovations in the processes of steelmaking and the purification of iron ore. Among these innovations are iron purification processes patented by Henry Bessemer in 1855 and by Pierre-Emile Martin in 1865, the latter taking advantage of the works of Carl Wilhem Siemens.

Important innovations were also observed in the textile industry, a consequence of the parallel development of the chemical industry, due in particular to the work of August von Hofman and John Perkin, which led to the introduction of the first artificial dyes in the 1850s.

Another innovation of the chemical industry, which was to have great future importance, was the rubber stabilization process called vulcanization, introduced in 1844 by Charles Goodyear.

Roughly concomitant was the first experience of organizing industrial production through the processing of interchangeable components along an assembly line carried out in the 1840s by Samuel Colt in the manufacture of the revolver, an individual firearm of repetition introduced by him.

[On this topic, see Box 4.1 – The assembly line]

## The ocean steamer

The changes in the transport sector in the period under consideration were not restricted to the railways. There were also particularly important issues relating to the steamship, thanks to two innovations that made it possible to overcome the problems that impeded its profitable use on oceanic routes. The first of these innovations was the replacement of the partially submerged side wheels by the fully submerged terminal propeller as a means of propulsion (innovation first introduced by Savage in 1832), increasing the efficiency in the use of energy. The second of these innovations was the replacement of the wooden hull by the metal hull, allowing an increase in the gross tonnage of ships from peaks of the order of a few thousand tons to a maximum of tens of thousands of tons.

As a consequence of these transformations, the steamship gradually replaced the sailing ships, whose business opportunities were restricted to the transport of goods less sensitive to travel time until it practically disappeared in the late nineteenth century.

The replacement of the sail by the steam allowed to reduce the length of the routes and to increase the speed of the movement, due to the emancipation of the routes and the speed with respect to the winds and the currents, all being combined in a clear reduction of the time of travel and, consequently, of the transportation costs. These were further reduced as a result of increased transport capacity, thanks to the increase in gross tonnage of ships, and the specialization of ships, between passengers and cargo and even by types of cargo.

### The interoceanic canals

The reduction of travel times and transport costs was further accentuated in some routes by the construction of interoceanic canals. The most important of these canals was undoubtedly the Suez Canal, opened in 1869, linking the Mediterranean Sea and the Red Sea and avoiding the need to circumnavigate Africa by the Cape of Good Hope route on journeys between Europe and the Indian Ocean or the Far East.

### The postal services

It should be noted that the progress in the transport and communications sectors in the period under consideration allowed and encouraged the development in most countries of public postal services with the capacity to provide much more efficient services than before, which had an impact in economic life.

However, it is worth noting that a significant part of the improvement of the postal service resulted from an organizational innovation concomitant with the progress of the physical operating conditions: the introduction of the system of previous payment of services through the purchase of stamps, used in the act of sending correspondence or orders.

## B – The institutional framework for consolidating modern economic growth

The institutional framework for the consolidation of modern economic growth can be considered as the natural extension of the institutional framework of its beginnings: a cultural environment dominated by economic liberalism, led to its international consequences with the flourishing of free-trade practices; and the opening, not always voluntary, of new trading partners, hitherto reluctant to accept a free economic relationship with the Euro-Atlantic world-economy.

At the same time, however, the development of socialist political doctrines and organizations, ideologically contested prevailing liberalism, and workers' syndicalism must not be forgotten.

## Free-trade

The first impulse towards the flourishing of free-trade practices was given by Britain in the 1840s by abolishing two protectionist laws that had become crucial in British economic life: the corn laws, which imposed customs duties so that imported cereals could not be sold at a price lower than domestic production; and the navigation laws, which reserved cabotage navigation and a part of the international commercial navigation to British vessels. Both the corn laws and the navigation laws were traditionally justified on grounds of national security (food and military, respectively); and it is reasonable to argue that they played an important role in supporting the development of some important aspects of the early modern economic growth (namely transformations in agriculture and the start of steam shipping). Its abandonment as legal restrictions in the mid-nineteenth century is evidence, to a large extent, of an environment of confidence on the part of Great Britain that its navy would not be harmed by foreign competition, which was clearly less efficient, and that this would be able to secure the country's supply of cheaper, foreign-origin agricultural products paid for by the export of industrial goods into which Britain had become the world leader (and whose cost would still be reduced by the lower price of food supplies, reducing nominal wages). It was also a sign of the confidence that the tax system, mainly through direct income taxes, would be able to compensate for the reduction in public revenue resulting from the abolition of customs duties.

The environment of confidence in the supplies provided by international trade spread over the following decades to other European countries, which agreed in bilateral treaties with Britain and each other to drastically reduce the customs duties on their imports. This environment was not generalized to Russia, to the independent countries of the American continent and to the majority of the rest of the world. The institutional framework of free-trade was later somewhat altered at the end of the century, as discussed in the following chapter. However, the world economy in the last stages of its formation and in its beginnings remained, until the eve of World War I, essentially free-trade, in the relations between the majority of the most relevant partners of international trade.

## The opening of new trading partners

Some economic spaces remained relatively closed to the interaction with the Euro-Atlantic world-economy until the late nineteenth century, for various reasons: in some cases mainly due to accessibility problems, especially in the interior of large continental masses, due to the lower efficiency, as indicated in the previous chapter, of land transport; in some cases due to health problems, especially in regions such as Sub-Saharan Africa, with a high incidence of malaria; in some cases by political choice. This was particularly the case in some large empires, which established rules limiting contacts, such as the state monopoly on foreign trade, and even banning foreigners from accessing specific places.

In the period under consideration impediments to the planetization process of the Euro-Atlantic world-economy were significantly reduced. The problems of accessibility to the interior of large continental masses were overcome with the diffusion of the railroad. Health problems, particularly those related to malaria, were controlled by the use of a new drug, quinine, improved by the progress of the chemical industry. Institutional frameworks that imposed restrictions on contact with the Euro-Atlantic world-economy were suppressed, sometimes by coercive actions from interested Euro-Atlantic powers. The most important cases were the opening of the ports of China (in 1842, following a war with Great Britain, which also resulted in the relinquishment of Hong Kong) and the opening of the ports of Japan (in 1854, following diplomatic and military pressure from the United States of America).

## The beginnings of socialism

In the mid-nineteenth century, critical perspectives began to emerge on the capitalist market system that were no longer traditionalist in nature, but which pointed to an even more radical transformation as a solution to the problems of modern society in consolidation. For these doctrinaires, inequality in the distribution of wealth and income, which contradicted the formal equality of citizens vis-à-vis public authorities, and the chaotic functioning of market mechanisms, leading to recurrent crises in the levels of economic activity and employment, should be overcome with the abolition of private ownership of the means of production, the redistribution of wealth and income, and the planning of economic life. These were the basic elements of the initial proposals of socialist doctrines.

The formation of the first political organizations soon followed the doctrinal proposals. In 1864, the International Association of Workers (usually known as the First International) was established. In the following decade, the First International collapsed due to the internal conflict between the anarchists, who advocated the abolition of the state as a precondition for the construction of socialist society, and the so-called social-democrats, who advocated the use of the state power as an instrument for the construction of socialist society. The social-democrats formed in 1889 a new Socialist International (generally known as the Second International).

## Workers' unionism

The era of consolidation of modern economic growth also witnessed the consolidation of workers' unionism, mainly due to the development of sectors where workers were specialized and difficult to replace, without high costs for the firms, in a context of high costs of use and maintenance of very expensive fixed capital. This happened especially in the new railroad sector. Thus, it was in this sector that, for the first time, widespread unionization and collective bargaining were relevant, a trend which then tended to generalize to other sectors and other types of workers.

## C – Business and firms in the era of consolidation of modern economic growth

The development of the new sectors associated with the consolidation of modern economic growth implied the spread of firms with management structures still centralized, but already functionally departmentalized and the appearance of new financing mechanisms that gave rise to investment banking.

[On this topic, see Box 4.2 – Centralized and functionally departmentalized firm]

### Railway firms as exceptional transport firms

The particular features of transport firms have already been highlighted in the previous chapters in the context of the economies prior to modern economic growth and the early stages of this process, both in terms of size and market characteristics, and also in terms of organization structures. In a sense, the railway firms presented characteristics similar to those that were already typical of transport firms before the railway appeared. However, they emphasized these characteristics quantitatively and qualitatively, leading to original answers to problems caused by the operational complexity of their transport system.

Railway firms tended to be exceptionally large firms in relative terms, owing to the geographic extent of their activities and to all the means that it was necessary to mobilize for their operation. The need to combine investments in the construction of the transport route itself (rails and their bed), with investments in facilities (railway stations and their equipment, mainly warehouses and workshops) and with investments in rolling stock (locomotives, coaches and wagons) added to the resources in personnel, a good part of it specialized, and in fuel to feed the steam engines of the locomotives. On the other hand, railway undertakings tended to have a market situation characterized by significant barriers to entry (because of the exceptional amount of initial investments in the means necessary for their operation) and a natural monopoly of connections (due to the specificity of lines in terms of route), within a framework of exceptional efficiency of rail transport compared to alternative means of transport. Natural monopoly situations led to the intervention of public authorities in the regulation of the sector and, in particular, in network planning (in some economies also in significant financial aid). Finally, railway firms tended to create management procedures to ensure that strategic assessment and decision-making resulted from the systematic collection of operational-level information. To this end, a particularly complex, departmentalized organizational structure was created with a hierarchy of intermediate managers recruited and trained to respond to this complexity of different tasks to be carried out, This type of organizational structure would later be replicated in large firms in other economic sectors (which often recruited managers with experience in the railways to their organizational structures).

[On this topic, see Box 4.3 – Railway particularities]

## Implications of the development of railway undertakings in the financial field

The exceptionally high amount of the financial means required for the start-up of a typical railway firm made the self-financing and informal credit schemes, hitherto predominant in long-term business financing, as explained in the previous chapter, unsuitable for its establishment. On the other hand, the long-term nature of a considerable part of the necessary investments made the commercial banking, which specializes in short-term operations, as also explained in the previous chapter, inadequate to support this establishment. For this reason, the formation of the railway sector had to resort on an unprecedented scale to financing through the capital market and to the formation of limited liability companies. It may be suggested that it was this need that led to the reduction of the limitations to the constitution of this type of society, limitations that have generally diminished since the middle of the nineteenth century. However, if these mechanisms appear to have been sufficient to trigger the process of rail transport in the more developed country of the world in the mid-nineteenth century, Britain, it does not appear to have been sufficient in other countries, particularly in Continental Europe. In these circumstances, the emergence of investment banking, a clear innovation in the more developed countries of Continental Europe, can be seen as a further implication of the formation of railway companies, now in the financial field.

On the other hand, the short- and long-term financial requirements of the railway companies involved a particularly meticulous planning in this area, which made them the first to develop modern analytical accounting or cost accounting as a way to monitor the efficiency of the activities and to anticipate financial needs.

## State intervention in the rail sector

As pointed out above, the natural monopoly character of rail links tended to lead to the intervention of public authorities to regulate this economic sector and, in particular, in the planning of the network. In the United Kingdom, this type of intervention was practically the only one and not particularly active, that is to say, the public powers were limited to granting rights of establishment of railway connections, arbitrating between alternative promoters for the same routes, but did not take the initiative to set up the network, or to impose conditions on the operation of authorized links. The trend in the United States of America and in the British colonial empire was identical. However, in continental Europe and the rest of the world the situation rapidly evolved to a deeper intervention by the public authorities, either by taking the initiative to set up the network, or by imposing conditions on the exploitation of authorized links (for instance, under the form of tariff regulation, or justifiable constraints with the public interest, especially military), or even creating public railway companies, especially to build rail links considered important for political reasons, but not attractive as a private business.

### Telegraph firms

The emergence of a means of communication that is not dependent on any means of transport led to the emergence of a specific sector of economic activity, with the creation of communications service firms (at the beginning, of course, telegraph service firms). The organization of communication services firms naturally assumed characteristics similar to those of transport firms, owing to the existence of similar constraints, in particular the carrying out of activity in dispersed locations and the specificity of the networks used. The observations made with regard to the organization of railway undertakings and the intervention of public authorities in the sector could therefore be repeated here, with appropriate adaptations.

### Urban infrastructure firms

Another sector that can be considered to emerge in this phase of consolidation and spread of modern economic growth is that of urban infrastructures. Indeed, the change in the sectorial structure of the economy discussed in box 2.4 implied a changeof the predominant residence of the population from a rural context to an urban context and led to a very significant increase in the size of the major urban centres. In line with the rise in living standards, this process created new supply requirements, some of which were met through relatively traditional forms (food, some fuels, clothing, etc., in addition to housing and mobile equipment), some of which were utilities satisfied through networks, which provided business opportunities with natural monopoly characteristics (such as urban transport and water and gas, to which electricity and telephones would later join).

[On this topic, see Box 4.4 – Urbanization]

### The shipping firms and interoceanic canals

As one would expect, shipping firms maintained the characteristics of organizational complexity and market power that were traditional in the industry. Nevertheless, thanks to the reduction of the travel times resulting from the reduction of the length of the routes and the increase of the speed of movement referred behind, there was an increase in the regularity of the service, enhanced by the use of the telegraph for the communication of the movement of the ships.

The construction of the interoceanic canals provided another opportunity for the creation of firms of considerable size and intervention by the public authorities due to the large investments required for this construction and the obvious natural monopoly situations generated.

### Industrial and agricultural firms

Although some of the developments in the industrial sector promoted the emergence of larger firms established as corporations, there was no change in the dominant forms of near-perfect competition markets, nor in the general complexity of forms of business organization in the industrial sector, where centralized and non-departmentalized structure continued to predominate, even among the most dynamic firms.

As in industry, also in capitalist agriculture the dominant market and organizational forms of business continued to be, respectively, the traditional near-perfect competition and centralized, non-departmentalized structure.

### Investment banking

Strictly speaking, investment banking had two different origins, one of relatively traditional character, the other of a quite innovative character.

### Investment banking of traditional origin

Investment bank of traditional origin was based on the business of managing fortunes and placing securities. This is a service traditionally provided by specialized bankers, through the receipt of client funds for investments which they evaluate and recommend, and the purchase at a guaranteed price of securities issued for placement with its customers (assuming the risk of price fluctuations during the placement process). This type of operation has been naturally extended by these bankers to bonds (stocks and bonds) of private companies, especially those involved in the emerging sectors, namely in the railway, telegraph, steam ship and interoceanic canals sectors.

Traditional investment banking sought generally to maintain a relatively centralized organization and a personal or family control of management, at least at the strategic level, although it resorted frequently to the use of banking organizations as true holding firms in various sectors of the economy.

The most important case of an investment bank of traditional origin was that of the Rothschild group, a family-owned banking firm established in Frankfurt since the sixteenth century, which created a network of banking firms in the main European markets in the eighteenth century, maintaining the control of all these endeavours through family ties reinforced by cross-marriages between family members established in different countries (a model of business organization already experienced in previous centuries, particularly in the financial sector, as noted in Chapter 1). The group was involved in investments in various sectors and several countries throughout the nineteenth century. It retained great importance in the world economy and group coherence until the beginning of the twentieth century. This importance and coherence diminished later, although the Rothschild family remains an important reference for business, especially financial business, in the early twenty-first century.

## Innovative investment banking

Innovative investment banking was based on deposit and lending operations similar to those of commercial banks, but with longer maturities (to which it, naturally, associated operations similar to those performed by the most traditional investment banks).

Unlike traditional investment banks, this new model of investment banking has, from its earliest years, shown a clear tendency to adopt the legal form of limited liability firms and relatively decentralized organizational forms, without losing the coherence of strategic management, ensured by promoters and the core of the owners.

The prototype of this type of investment bank was Crédit Mobilier, created in Paris in 1852 by the brothers Émile and Isaac Péreire. Significantly, as early as 1855, the Rothschild family, linked to a more traditional type of investment banking, as mentioned above, created a bank analogous to Crédit Mobilier in Vienna under the name of Creditanstalt. The rivalry between the Péreire and Rothschild groups in the diffusion of the new model of investment bank ended up in favour of the greater predominance of the initiatives of the Rothschild group, with the Péreire going bankrupt in 1867.

## The universal bank

It is generally accepted that in the British case the direct relationship of firms with the capital market through the issuance of securities on the stock market largely satisfied the needs of capital mobilization, which in Continental Europe had to be satisfied by the new type of banking organization, which was the investment banking. The role of the more traditional investment bank in the process of linking the new initiatives to the capital market can not in any case be ignored.

In the meantime, and particularly in Continental Europe, the success of investment banking initiatives led commercial banks to seek to develop schemes to take part in long-term initiatives, especially through the technique of credit renewal, that is to say, short-term credits systematically renewed in order to become, in practice, long-term credits.

Either by blurring the boundaries between commercial banking and investment banking, or by linking banking firms with different vocations into one financial group, there was a relatively widespread tendency to create what is commonly known as universal banking, that is to say, a banking sector in which the same companies, or companies deeply related through cross-shareholdings or control by the same core, to operate in the two market segments, commercial banking and investment banking.

## D – Other aspects of the consolidation and spread of modern economic growth

Three additional aspects need to be underlined in relation to the period of consolidation and expansion of modern economic growth now under consideration: firstly, the acceleration of transformations; secondly, the extension of the geographical area of impact of these changes; and thirdly, the fluctuations of the economic activity.

### Acceleration of transformations

Underlining the acceleration of the transformations must be understood as a counterpoint to what was said in the previous chapter on the relative slowness of these transformations at the time of the beginnings of modern economic growth. Gradually sectors and regions that had not yet been affected by the change were being subjected to the impact of new production systems, with all its consequences, such as population growth, greater urbanization of activities and population, separation of economic units of consumption (households) and economic units of production (firms) and, despite the persistence of great inequality and poverty, the rise in the average living standard of the population, with consequences in the size and pace of market expansion.

### Spread of transformations

The main innovations of this second phase of modern economic growth already spread to an important part of continental Europe – in addition to the regions already affected in the first phase of modern economic growth, France in general, Germany and Switzerland – and the United States of America. This increased the number of national economies that emerged as highly developed or in the process of becoming highly developed.

Of course, as pointed out above, the impact of the transformations that took place was felt in much wider areas. Indeed, it was in this phase of consolidation of the process of modern economic growth that a few more important steps were taken towards the planetization of the Euro-Atlantic world-economy, to which reference was made above.

### Fluctuations of economic activity

The short-term economic situation in this era of consolidation of the process of modern economic growth was marked by the impact of the diffusion of the innovations introduced in the 30s and 40s of the nineteenth century, triggering a period of particularly rapid growth that lasted until the 70s of the 19th century. Contrary to what had taken place at the time of the beginning of the process of modern economic growth, this period was not disturbed by any protracted war between the major powers of the world society in formation (all conflicts were of short duration and never involved all the great powers at the same time). However, situations of more or less periodic economic crisis accentuated.

[On this topic, see Box 4.5 – Jugglar cycles and Kondratiev cycles]

## Fundamental topics of Chapter 4

• Technological and institutional innovations that allowed the consolidation and spread of modern economic growth and relations between them.

• Reasons why firms that have made the innovations that allowed the consolidation and spread of modern economic growth are larger firms with more complex internal organization (centralized and departmentalized) than the typical industrial firms of the take-off of modern economic growth.

• Ways of financing the consolidation and spread of modern economic growth, particularly the role of financial markets, investment banking and universal banking in the process and their causes.

• Role of the intensification of international economic relations in the diffusion of modern economic growth

## Questions for reflection

• What factors explain the geographical patterns of spread of modern economic growth in the mid-nineteenth century?

• What factors explain the geographical patterns of the spread of the Euro-Atlantic world-economy in the mid-nineteenth century?

• How are the specificities of the railway sector explained and to what extent have they been common to the other more dynamic sectors of the period of consolidation of modern economic growth?

## Box 4.1 – The assembly line

The organization of industrial production by processing interchangeable components along an assembly line, commonly known as the production chain, was, as noted in the text, introduced for the first time in the mid-nineteenth century, but only expanded to a number of production activities in the late nineteenth and early twentieth centuries. This was a consequence of the constraints it entails, notwithstanding the advantages it presents.

The advantages are an increase in productivity, resulting from the increase in the speed of the production process. This allows the increase of the volume produced with less than proportional increase of the use of some resources, that is to say, gains from economies of scale.

The constraints that arise in counterpart involve technological aspects and market aspects. Technologically, the production chain requires a very low margin of tolerance for manufacturing defects in the production of the component parts of the final product, so that they are actually interchangeable without the need for adjustments for each unit produced. From the point of view of the market, the flow of production requires the existence of a high demand for the product, without which it is not profitable to take advantage of the economies of scale.

These constraints correspond to the existence of high fixed costs of production and oligopoly markets, something that, as pointed out in the text, was not yet the predominant situation in the industrial sector in the mid-nineteenth century.

## Box 4.2 – Centralized and functionally departmentalized firms

A centralized and functionally departmentalized firm is characterized by the existence of at least two hierarchical levels of managers: the highest hierarchical level of managers (top managers) is, as a rule, only responsible for the strategic level of management; if there is only another hierarchical level of managers, it is responsible for the functional level of management and controls, through technical managers, the operational field of management; if there are several other hierarchical levels of managers, they are responsible for both the functional level (where several departments are perceived) and the operational level of management.

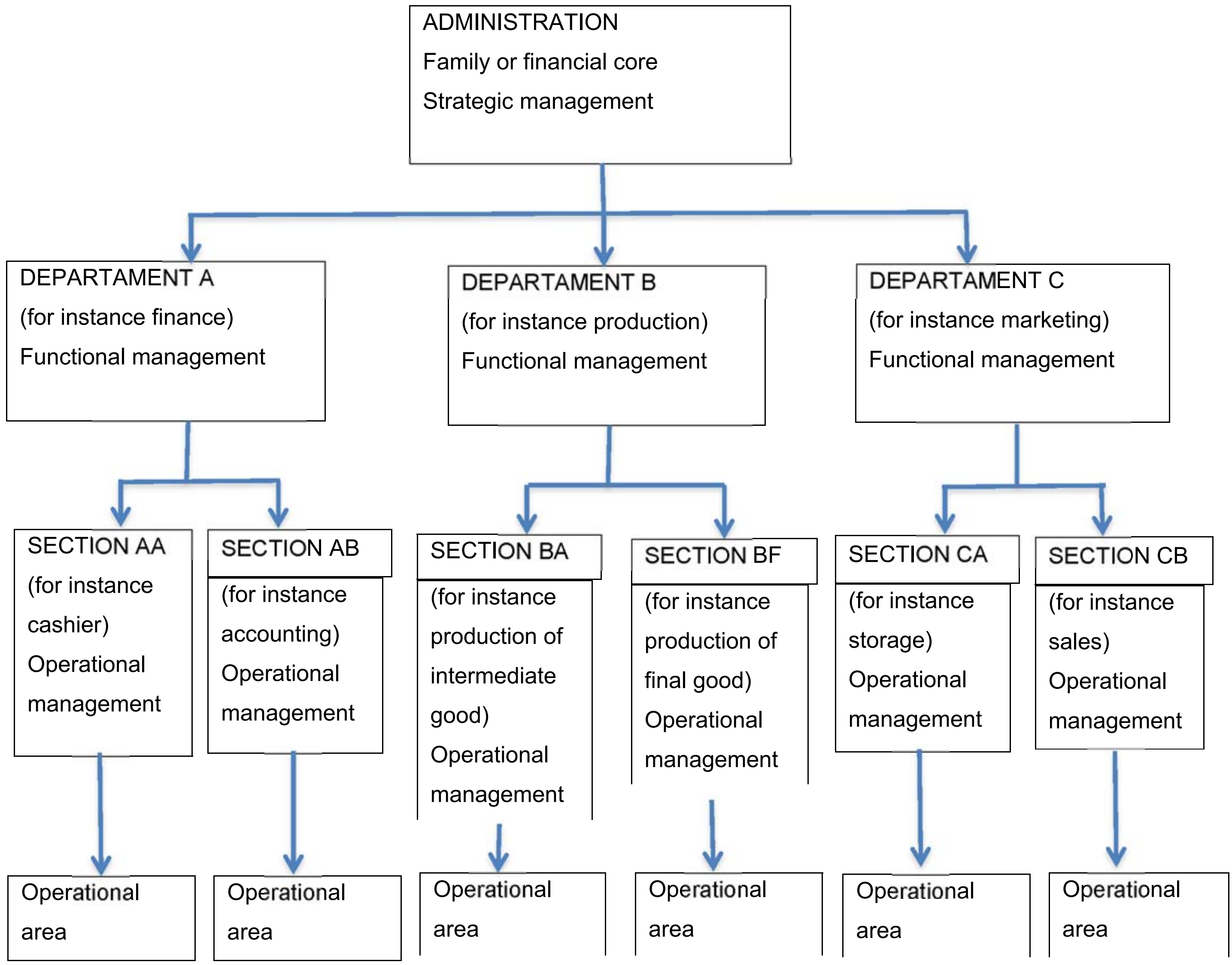
As explained in the text of the chapter, this type of firm usually arose as a result of the development of the companies associated with the most dynamic sectors of the consolidation of the process of modern economic growth, involving the existence of multiple production locations and a structure of costs implying the predominance of fixed capital over working capital. The model then tended to spread to most large firms.

These firms, by their size, no longer allow a single level of managers to control all areas of management and, because of their complexity, no longer allow tasks to support the functional domain of management to be performed by mere technical clerks, and tasks in support of the operational field of management to be performed by mere foremen.

From the perspective of the typology presented in box 5.7, these are, as a rule, family-owned firms, financially dominated firms, or management dominated firms.

In these circumstances, the typical organization chart of a centralized and functionally departmentalized firm (sometimes referred to as a U-type firm – U from 'unitary') can be represented by figure 4.1.

**Figure 4.1 – Organization chart of a centralized and functionally departmentalized company**



## Box 4.3 – Railway particularities

In addition to the exceptional features mentioned in the text, the operation of railway lines involved some management specificities for which it is worth to draw attention.

Firstly, the railways were the first (and, in fact, the only) means of transport in which the firms owning the route generally hold the exclusive right of moving vehicles on that route. In fact, all previously existing means of transport used a publicly available road (for most waterways and most roads), or in which any operator could move his vehicles in return for a toll payment (in the case of canals and toll roads); and the means of transport subsequently developed (in the case of air transport) also use a publicly available route (although progressively overcrowded and conditioned by the need for specially prepared arrival and departure locations, which also tended to occur in the case of development of port facilities). The fact that users could not circulate their own vehicles on the road led to the provision of additional services for the storage and forwarding of goods by railway undertakings.

Secondly, the railroad faced, except in particularly important lines, built with double track, the problem of circulating compositions in opposite directions in a single track. This problem was overcome by a particularly careful design of schedules (which, incidentally, forced the standardization of the reference time between the stations, leading to the replacement of local solar time for a common time of the rail network and later for a legal time, national or at least regional in those countries where the existence of a single legal time becomes uncomfortable because of its extension in longitude). Shortly after the introduction of the railway, it was possible to use the electric telegraph in support of its operation, allowing to increase the security by the communication between the stations of information on the movement of the trains.

## Box 4.4 – Urbanization

From an economic point of view, a town is a permanent settlement where most economically active inhabitants engage in occupations that do not directly produce food (that is to say, are engaged in industrial or service occupations). From the demographic point of view, a town is a permanent settlement with a population of more than a conventional threshold. Today it is usual to consider a threshold of 10 thousand inhabitants; this threshold ensures that no economically rural cluster is wrongly classified as urban in demographic terms, although it may leave out some economically urban clusters because of its small demographic size. In many countries there is also a legal definition of a city.

Before the beginning of the process of modern economic growth less than 10% of the world's population lived in cities and the largest cities in the world reached a few hundred thousand inhabitants, but were far from a million. From another perspective, no city had more than one-thousandth of the world's population. As might be expected, the largest cities in the world on the eve of the early modern economic growth process were the capitals of the largest empires (Beijing in China, Delhi in India, Moscow in Russia and Istanbul in Turkey) and some of the major cities of the Euro-Atlantic world-economy (London in Great Britain, Paris in France, Amsterdam in the Netherlands). London became the first city in the world to exceed one million inhabitants following the precocity of modern economic growth in Britain.

Today, more than half the world's population lives in cities and the largest cities in the world reach several million people. From another perspective, a considerable number of urban settlements clearly exceed one thousandth of the world population (that is to say 7 million inhabitants). The list includes Los Angeles and New York in the United States, Buenos Aires in Argentina, Dhaka in Bangladesh, Rio de Janeiro and São Paulo in Brazil, Běijīng (Beijing), Dōngguǎn, Guǎngzhōu (Canton), Shànghǎi, Shenzhèn and Tiānjīn in China, Bogota in Colombia, Kinshasa in the Democratic Republic of Congo, Seoul in Korea, Cairo in Egypt, Manila in the Philippines, London in Britain, Bangalore, Coltaca, Delhi and Mumbai in India, Jakarta in Indonesia, Tehran in Iran, Tokyo in Japan, Mexico in Mexico, Lagos in Nigeria, Karachi in Pakistan, Lima in Peru, Moscow in Russia, Bangkok in Thailand and Istanbul in Turkey.

This change in the predominant residence of the population is obviously a consequence of the world economy becoming a transformation economy, as indicated in box 1.2.

## Box 4.5 – Juglar Cycles and Kondratiev cycles

As explained in Box 3.5, the characteristic economic fluctuations of the economies after the process of modern economic growth are brought about by the successive impact of the introduction and diffusion of innovations and the subsequent exhaustion of these innovations.

There are, of course, innovations of varying relevance: the importance of the introduction of the personal computer and the introduction of a new personal computer model is, of course, different. Innovations of different relevance naturally have a different impact on the economy, both in terms of growth momentum and in terms of impact in triggering economic fluctuations. There are, therefore, economic fluctuations of varying magnitude, depending on the impact of the innovations that gave rise to them.

It is, of course, the most relevant innovations that explain the large increases in economic activity that occurred throughout the process of modern economic growth and the major economic fluctuations that accompanied this process. In the various chapters of the text these innovations of greater relevance (not only technological, but also institutional, organizational and geographic) are enumerated and the main economic fluctuations that they gave rise to are evoked.

Since the mid-nineteenth century, following the work of the French economist Clément Juglar, a regularity of economic fluctuations has been identified, corresponding to the existence of economic cycles of approximately ten-year period, which have come to be called Juglar cycles. Shortly after World War I, the Russian economist Nicolai Kondratiev suggested the identification of economic cycles of a period slightly over half a century, which have come to be called Kondratiev cycles (or long waves).

The fluctuations corresponding to the Juglar cycles are clearly identifiable in the evolution of the more developed national economies and the contemporary world economy as a whole until the First World War; their identification is clearly disturbed by the world wars and the Great Depression (discussed in chapter 6) between the second and fifth decades of the twentieth century; they seem to disappear in the third quarter of the twentieth century due to the effectiveness of countercyclical economic policy; and its identification has been disputed since the last quarter of the twentieth century.

The identification of the Kondratiev cycles has been questioned by many economists and historians, but it has also been useful as the basis for many interpretations of the evolution of the contemporary world economy.

The following table summarizes long waves as identified by most economists and historians who use them as a basis for interpreting the evolution of the contemporary world economy.

**Table – Summary of long waves or Kondratiev cycles**

| start / end of ascending phase / end of descending phase | main technological innovations | main institutional and organizational innovations | main geographical innovations | hegemonic national economy | large emerging economies |
|---|---|---|---|---|---|
| 1780s / 1810s / 1840s | Crop rotation<br>Steam engine in factories and in river and coastal navigation | Liberalism<br>Spreading of production with machinery and the factory system<br>Predominance of non-departmental firms<br>Commercial banking | Integration of the economies of Russia, Turkey and India into the Euro-Atlantic world-economy | Great Britain | Great Britain |
| 1840s / 1870s / 1890s | Starting of mechanization of agriculture<br>Steam engine in railway and ocean navigation<br>Electrical telegraph<br>Refining of crude oil | Free-trade<br>Gold standard<br>Spread of centralized and functionally departmentalized firms<br>Investment banking | Integration of the economies of China and Japan into the Euro-Atlantic world-economy | Great Britain | France<br>Germany<br>USA |
| 1890s / 1910s / 1940s | Mechanization and chemical fertilization in agriculture<br>Internal combustion engine<br>Electric energy and lighting | Conventional monetary systems<br>First socialist experiences<br>Multidivisional companies | Conclusion of the planetization of the Euro-Atlantic world-economy<br>Later, globalization backlash | Transition from the hegemony of Britain to the hegemony of the United States of America | Russia<br>Japan<br>Italy<br>Canada |

| start / end of ascending phase / end of descending phase | main technological innovations | main institutional and organizational innovations | main geographical innovations | hegemonic national economy | large emerging economies |
|---|---|---|---|---|---|
| 1940s / 1970s / 1990s | Reaction motors<br>Electronics<br>Nuclear power | IMF<br>World Bank<br>GATT<br>Mixed economies<br>Organization of matrix companies | Division of the world economy between capitalist market economies and socialist centrally planned national economies | USA | Brazil<br>Mexico<br>Spain<br>South Korea |
| 1990s / ? | Computing<br>Biotechnology | OMC<br>Neo-liberalism<br>Network organization of firms | Second globalization | USA | China<br>India<br>Indonesia |

Note – The national economies referred to in the last column are the fifteen largest national economies of the contemporary world economy today.

Although the phases of the process of modern economic growth, which serve as a basis for the periodization used in this text, do not fully coincide with the periodization of the Kondratiev cycles presented above, explanation of most of these phases is mainly based on the waves of innovations that gave rise to the long waves corresponding to these cycles.

# 5 – The first globalization and the beginnings of the contemporary world economy (late nineteenth and early twentieth century)

The last decades of the nineteenth century saw the completion of the formation of the contemporary world economy, and the period prior to the outbreak of World War I can be described as that of the beginnings of the contemporary world economy. Since then it makes sense to speak of the existence of a world economy and society.

The technological and institutional foundations for the completion of the formation of the contemporary world economy were gradually being built by the process of modern economic growth since its beginnings in the eighteenth century; and some important steps towards this conclusion have already been pointed out in the previous chapter. However, the important spatial innovation corresponding to the virtually total disappearance of any relevant self-sufficient economic space in relation to basic goods only occurred at the end of the nineteenth century. At the same time, technological innovations, particularly those linked to the use of electricity and the internal combustion engine and the progress of the chemical industry, and institutional factors, particularly the free-trade environment and the diffusion of the gold standard monetary system, contributed to accentuate the dynamism of this phase of modern economic growth, while stimulating the diffusion of the cutting-edge innovations of modern economic growth to other national economies. This diffusion was, on the other hand, strongly stimulated and supported by increased foreign trade, international investment and intra and intercontinental migration.

In terms of business structure and organization, this dynamism of the world economy resulted in the emergence of what is usually referred as the big modern firm. In fact, it was a question of the expansion of large-scale, multiunit firms, internalizing different productive functions, functionally departmentalized, sometimes decentralized and organized into divisions, where there is a separation of ownership and management and in which the tasks of the various levels of management are carried out by a hierarchy of full-time salaried professional managers who are essentially school-trained and not simply practical. This process, which in the period now under consideration occurred mainly in the United States of America, also spurred the model of managerial capitalism, where the management of the main capitalist organizations is carried out at the strategic level by top managers whose decisions are ratified by a board of directors, legally defined as representing the owners.

Associated with this new role of professional managers was the development of school training of managers, including at the level of higher education, and the emergence of the first scientific management paradigms.

## A – The technological framework of the beginnings of the contemporary world economy

The technological innovations associated with the early days of the contemporary world economy were fundamentally related to the use of electricity and the internal combustion engine and to the progress of the chemical industry. These innovations shaped such radical innovations in comparison with the technologies of the first industrial revolution that they led to the introduction of the denomination of second industrial revolution because of the transformations that ensued. It is also important to emphasize the importance of the dissemination the organization of industrial production by processing interchangeable components along an assembly line.

### Electricity

The first important economic application of electricity was the telegraph, linked to the process of consolidation and spread of modern economic growth in the mid-nineteenth century, as explained in the previous chapter. In the second half of the nineteenth century, two other applications were added, which were to be diffused in the late nineteenth century and throughout the first half of the twentieth century: one was the electric dynamo, the basis of electric motors, introduced by Gramme in 1869; another was the electric light bulb introduced by Thomas Edison in 1878.

Electric motors had great importance in industrial activity and even in agricultural activity, tending to gradually replace the steam engine, since they present two significant advantages: a greater ease of transmission of the energy at a distance and a greater flexibility of starting and stopping. In the transport sector, electric motors could be used effectively in vehicles running on rails. Immediately, this innovation has radically transformed urban transport, replacing animal-drawn vehicles and urban steam trains with electric vehicles, circulating in their own beds (the so-called metropolitan trains), or circulating in the tracks of other vehicles (the so-called electric tramways and trolley cars). Later, electric motors also penetrated interurban railways, once the initial difficulties of efficient transportation of electricity over long distances were overcome. The electric motors could not, however, penetrate significantly in the propulsion of vehicles not conditioned by rails, due to the difficulty of feeding or accumulating electric energy in these vehicles. Its application in refrigeration also opened up a new era in food preservation by introducing an alternative technique to the traditional use of natural preservatives (such as salt or sugar). Also its application to household appliances tended to modify deeply the daily life.

Electric lighting has also been of great importance for the transformation of everyday life, tending to gradually replace lighting gas in public, factory and domestic lighting thanks to advantages similar to those of electric motors: greater ease of transmission of energy at a distance and greater flexibility of starting and stopping.

It is also important to stress the importance of linking electricity to the chemical industry through the use of electrolysis in the metallurgical industry. This use has extended the range of metals and their alloys of current economic use. It was particularly important in the nineteenth century the widespread use of aluminium.

## The internal combustion engine

The internal combustion engine was introduced by Lenoir in 1860 and was the origin of the appearance of two new types of vehicles: the automobile and the airplane.

The automobile, that is to say, a road vehicle similar to traditional animal-drawn vehicles but propelled by an internal combustion engine, was introduced more or less simultaneously in the mid-1980s by Carl Benz and Gotlieb Daimler. Its progress benefited greatly from the combined use of the internal combustion engine and of the tire, an innovation introduced by John Dunlop in 1887 to equip the wheels of a non-motorized vehicle, the bicycle. Later, internal combustion engines were also applied to two-wheeled vehicles, giving rise to the so-called motorcycle. In the late nineteenth century and throughout the first half of the twentieth century, and once appropriate innovations in road construction were introduced, cars became the predominant vehicle in all segments of road transport, and became a ground transportation vehicle with efficiency comparable to the railways, with the advantage of being rail independent. The car also allowed the appearance of the first mobile agricultural machines, in particular the so-called tractors.

The plane was first introduced by the Wright brothers, Orville and Wilbur, in 1903. Throughout the first half of the twentieth century, the airplane allowed the development of a new transport sector, air transport, initially in competition with the balloon, which ended up being less efficient than the plane and was abandoned as a means of transport with systematic economic application.

## The chemical industry

The development of the chemical industry was crucial to the progress of several other sectors during the period now under consideration. Particular emphasis should be placed on its impact on the transport sector, through its relationship with the internal combustion engine and the road surface, on the agricultural sector, through the introduction of artificial fertilizers, and on the food sector, through the introduction of artificial preservatives and of dehydration processes.

Fuels for internal combustion engines are made from crude oil, a liquid fuel known for many millennia, but traditionally little used because of its poor heat or light efficiency. The modern use of oil is based on its refining, that is to say, its decomposition into various products for different uses (engine fuels, lighting fuels, industrial raw materials, etc.). This decomposition and the subsequent use of petroleum derivatives in a variety of applications gave rise to the so-called petrochemical industry, one of the sectors of the chemical industry with the greatest impact in the period under consideration and in subsequent periods.

The refining of oil also provided products suitable for a more efficient coating of roads, resulting in a decisive boost to the progress of road transport by car.

Artificial fertilizers were the main innovation introduced in agriculture during the period now under consideration. With them it was possible to obtain results in the regeneration of the soils inaccessible to the traditional use of the manure and even to the use of the natural fertilizers, introduced in the time of the consolidation of the modern economic growth, as explained in the previous chapter.

The introduction of artificial preservatives and dehydration processes has been an additional alternative to traditional food preservation techniques and has led to major changes in the food industry along with the refrigeration technique mentioned above.

## Innovations in the field of communications

Although the telegraph continued to be the principal means of long-distance communication at the time of the completion of the formation of the contemporary world economy and the beginnings of the existence of the contemporary world economy, two important innovations were introduced in this sector in the late nineteenth century and early twentieth century, the telephone and the radio, or wireless telephone.

The telephone, an electrical transmission system, no longer of conventional signals, but of sounds (and especially of the human voice itself), was introduced by Thomas Bell in 1882. It was only important in communications at relatively short distances for technological reasons and costs, but it has widened its domain of use throughout the twentieth century.

The radio, or wireless telephone, a signal transmission system, particularly of sound signals, through long-wavelength electromagnetic waves, was conceived by Heinrich Hertz in 1887 following the identification of electromagnetic radiation by James Maxwell in 1873 and put in practice by Oliver Lodge in 1894. Its diffusion was, however, mainly due to the businessman Guiglielmo Marconi from 1898.

## Organization of industrial production by processing interchangeable components along an assembly line

As explained in the previous chapter, the first experience of organizing industrial production through the processing of interchangeable components along an assembly line was made in the 1840s. Its generalization only occurred, however, in the first half of the twentieth century, especially following its introduction into the motor-vehicle industry by Henry Ford at the beginning of the second decade of the century, spreading later to other productive sectors (on their advantages and the constraints that delayed its generalization, recall Box 4.1).

## B – The institutional framework of the beginnings of the contemporary world economy

The conclusion of the formation of the contemporary world economy and the beginnings of the existence of the contemporary world economy were largely a result of the progress of transport and communications mentioned in the previous chapter and in the previous section. However, they were also boosted by an institutional framework involving the continuation of free-trade practices, the development of an international monetary system linking national monetary systems to what is commonly called the gold standard and the development of international cooperation practices.

### Formation of the contemporary world economy

The process of formation of the contemporary world economy implied:

a) The intensification of interregional economic relations between the spaces already integrated in the Euro-Atlantic world-economy.

b) The deepening of the regional specialization of productions between the Euro-Atlantic world-economy and other world-economies, with which relations had been established since the process of the so-called Discoveries in the fifteenth and sixteenth centuries.

c) The openning to economic interaction with the rest of the world of some regions where local cultivation economies subsisted. This was the case in the mid and late nineteenth century of most of sub-Saharan Africa and parts of Asia's interior and islands of the Pacific Ocean.

d) The occupation by immigrants of European origin of some regions where previously predatory local economies existed. This was the situation in the mid and late nineteenth century of an important part of the American continent and Australia.

[On this topic, see Box 5.1 – Forms of integration of global economies into the contemporary world economy]

### Institutional framework of international trade

Some facts have somewhat altered the tendency to the free-trade institutional framework established in international trade in the mid-nineteenth century, as pointed out in the previous chapter. First of all, the formation of new and vast colonial empires by some European powers. In these cases, there was a tendency for colonial powers to establish areas of preferential duties with their colonies and reduce the degree of openness towards European partners. Secondly, the loss of competitiveness of certain economic activities, notably agriculture, as a result of the inflow into Europe of agricultural products, mainly cereals, from spaces newly integrated in the world economy. In these cases, the reaction was to protect the economic activities affected, in particular the agricultural production of

European countries, in order not to allow the establishment of a productive structure totally dependent on the new overseas producers (the exception was Britain, which, since the abolition of the corn laws referred to in the previous chapter, had accepted this almost total dependence). Thirdly, the desire to stimulate, through the protection of nascent industries, the triggering of national processes of modern economic growth. In these cases, customs barriers were erected mainly to allow the appearance of sectors considered strategic for these national processes of modern economic growth.

[On this topic, see Box 5.2 – Advantages and disadvantages of free trade and protectionism]

Despite these facts, it may be said that the institutional framework of international trade remained essentially free-trade until World War I in Europe and in European colonial empires, although Russia and the independent countries of the American Continent continued to constitute exceptions to this trend.

## The monetary system of the gold standard

Another decisive institutional element for the completion of the formation of a world economy in the late nineteenth century was the development of an international monetary system articulating the national monetary systems in what is usually called the gold standard.

The monetary system of the gold standard rested on four fundamental rules:

1. The monetary unit was defined as a certain amount of gold.

2. Payments were made with gold coins, or with means of payment, such as banknotes or instruments for the transfer of deposits among banks at the national level, and as bills of exchange at the international level, directly or indirectly convertible at sight in gold coins (with the exception of divisionary and change coins).

3. There was freedom to export and import gold in any form.

4. Monetization (gold minting) and demonetization (gold melting) were free.

The first rule ensured that, although monetary units might differ from country to country, there was legally a fixed exchange rate, called the parity exchange rate between them.

The second rule ensured that all means of payment had a stable value in terms of the monetary unit either because they had an intrinsic value in gold or because they were convertible into gold without significant costs. The divisionary and change coins, which had a purely conventional value, were excluded; but its quantitative importance was, in principle, very small and this made the widespread acceptance of its conventional value relatively easy.

The third rule ensured that market exchange rates could not deviate significantly from the parity exchange rate because, if this were to happen, international payments would no longer be made using fiduciary instruments such as bills of exchange (which saved the cost of transportation and insurance of gold) and would be made directly with gold.

The fourth rule ensured that the price level in terms of the monetary unit was determined by market mechanisms, which established the price of gold as a commodity, and not by any manipulation by the monetary authorities, whose role was practically reduced to that of ensuring the respect for the rules of the system.

The monetary system of the gold standard was adopted by Britain in 1821, gradually spread to most countries of the Euro-Atlantic world-economy throughout the nineteenth century and became during the period under consideration typical of most countries of the world economy. Exceptions to the respect for the rules of the gold standard were only found in countries with serious financial problems, where there was sometimes a purely conventional currency regime (especially with Iberian and Latin American countries); in newly developed countries integrated in the world economy, which sometimes maintained silver standard monetary systems (the most important case being China), and in countries subject to colonial rule, whose monetary system was usually linked to the metropolis standard (which, incidentally, sometimes meant a reference, albeit indirect, to the gold standard).

[On this topic, see Box 5.3 – Commodity monetary systems and conventional monetary systems]

## Hierarchy within national banking systems

The development of the monetary system of the gold standard was associated to the development of a hierarchy within the national banking systems that gave rise to the emergence of the central banks.

In fact, in order to better guarantee the direct convertibility of bank notes into gold, the issue was mostly concentrated in a single bank (in the case of the United States of America, in a complex of banks called the Federal Reserve System), which at the same time also concentrated an important part, possibly a majority, of the gold reserves existing in the country.

On the other hand, in order to better guarantee the indirect convertibility of demand deposits in banks in general, through their direct convertibility into banknotes, the issuing bank assumed in most countries the role of lender of last resort. In other words, it undertook, formally or informally, in the event of a banking crisis, the responsibility to finance banking organizations that had sound guarantees and balance-sheet situations, preventing them from being forced to suspend payments because of exceptional withdrawals caused by panic from depositors.

The combination of the exclusive issue of fiduciary money (banknotes) and the lender's role as a guarantor of scriptural money (demand deposits) led the banks thus transformed into central banks to gradually cease their relations with non-financial economic agents, becoming almost exclusively banks of the rest of the banking and financial system.

## Other institutional aspects of the formation and the beginnings of the contemporary world economy

Of the other institutional aspects that have shaped the formation and the beginnings of the contemporary world economy, it is necessary to emphasize the multiple forms of international cooperation, some formal, others informal, and the development of the first social security systems. It is also important to bear in mind the main features of the evolution of the socialist movement.

### International cooperation

Important examples of formal international cooperation that have developed in the period under consideration are the first permanent international organizations: the International Telegraph Union (now the International Telecommunication Union) established in 1865, the World Meteorological Organization, established in 1873, and the Universal Postal Union, created in 1874.

Also in the period now under consideration, the first international non-governmental organizations began to emerge, among them the Red Cross (now the International Federation of Red Cross and Red Crescent Societies), established in 1869.

An important example of the informal international cooperation that has developed in the period under consideration is the generalization of the use of two weight and measurement systems, the British system and the metric system, ensuring a high degree of standardization of weights and measures worldwide.

### Social security systems

Social security systems emerged in the more developed countries of Europe, notably in Britain and Germany in the late nineteenth century. Initially, they were primarily systems of state tutelage for traditional mutual aid schemes, almost always directly controlled by corporate and trade union organizations.

### Evolution of socialist doctrines

The end of the nineteenth century witnessed the appearance of some divisions within the Second International (created in 1889, as already mentioned in the previous chapter) and the socialist parties that were part of it. These divisions resulted mainly from the evolution towards universal suffrage in many countries, which raised the question of the possibility of socialist forces coming to power by electoral means and what this entailed in terms of possible reformulation of their program and tactics.

A part of the socialist movement considered that the possibility of assuming power through the electoral process implied changes in its tactics and its program, in particular the renunciation of the breakdown of legality previously in force and the acceptance of the coexistence of transformations of the economic and social system in the sense of socialism and the permanence of capitalist structures during the transition period between capitalist society and socialist society. This perspective, traditionally called revisionist, did not immediately become dominant in the socialist movement, but would strongly influence its evolution throughout the twentieth century.

A part of the socialist movement considered that the possibility of assuming power through the electoral process implied a renunciation of breaking the legality previously in force, but not any modification of its program. This perspective, traditionally called reformist or social-democrat, was the one that immediately became dominant in the socialist movement.

One part of the socialist movement considered the possibility of assuming power through the electoral route as really non-existent, especially because it understood that the imminence of a transformation of society according to the socialist program would trigger a reaction, if necessary violent, on the part of the dominant bourgeois class. Under these circumstances, there was no sense in any tactical or program change. This perspective, traditionally denominated revolutionary, ended, in most countries, to break with the Second International, to constitute new parties, later often denominated communist parties, and to create, immediately after the First World War, what became known as the Third International.

## C – Business and firms in the era of the early days of the contemporary world economy

The time of the completion of the planetization of the Euro-Atlantic world-economy and the beginnings of the contemporary world economy witnessed, along with the continued growth of international trade, that is to say, international transactions of goods, an exceptional expansion of international investment.

However, the main innovative feature of firms and business in the early days of the contemporary world economy was the emergence of what is usually referred as the big modern firm. This phenomenon was associated with the development of oligopoly markets, which implied some innovations in terms of business strategies, which must be analysed.

### International Investments

The articulation with the Euro-Atlantic world-economy in the process of becoming the contemporary world economy of hitherto relatively self-sufficient spaces, and the intensification of economic relations between the spaces already inserted in this economy required large investments, partly to create or improve the means of transport and communication that allowed or facilitated the access of the national economies of the centre of the Euro-Atlantic world-economy to these spaces, partly to create or modernize the economic activities that produced the goods originating from those spaces sought by the national economies of the centre of the Euro-Atlantic world-economy. Frequently, perhaps even more often than not, the semi-peripheral or peripheral spaces which were articulated with the Euro-Atlantic world-economy, or whose relations with the centre of that economy were intensified, did not possess the resources, particularly human and physical, necessary for these investments. Human resources were often provided by the emigration of more or less skilled labour, mainly of European origin, to these regions. Physical resources, especially those associated with leading technologies in transportation, communication and even directly productive activities, have often been imported from more developed economies. However, this import required financial resources that were also scarce in these peripheral and semi-peripheral spaces. The need to dispose of these financial resources and their availability in the more developed economies meant that the time of completion of the formation of the contemporary world economy and its beginnings witnessed important international flows of capital.

These flows took three forms: loans to governments or firms of peripheral and semi-peripheral areas; acquisition of property assets of firms of these spaces; and establishment of firms based in the countries of the centre of the Euro-Atlantic world-economy, to carry out activities in the peripheral or semi-peripheral spaces of this economy (the latter form of capital flow gave rise to so-called free-standing firms). As a result of these flows, multinational companies were created in an extremely high number and gained a very significant weight in the world economy as a whole.

[On this topic, see Box 5.4 – Multinational firms]

In the period under consideration, foreign investment flows were mainly originated from the more developed countries of Europe, particularly Great Britain, and were mainly applied in European economies in the process of starting up modern economic growth (Mediterranean Europe and Eastern Europe, including Russia) and in what may be termed European overseas extensions, that is to say, colonial countries or dominions predominantly populated by populations of European origin and with institutions of European roots (countries of the American continent, Australia and New Zealand).

## International financial markets

The development of international business was facilitated by the establishment of the international monetary system of the gold standard and the emergence of international financial markets, of course mainly located in the more developed economies of Europe, where specialized organizations were engaged in the regular trading of financial assets related to this international business. These organizations took two main forms: stock markets, that is to say, institutionalized security markets; and financial intermediaries, that is to say, banks, especially investment banks of traditional origin of the type referred to in the previous chapter.

Of particular importance in this context was the activity of London market, linked to the economy from which the largest flow of foreign investment came at that time and which tended to attract even capital from other countries for placement through its stock exchange and its investment banks .

## The big modern firm

The big modern firm is characterized by being a large, multiunit firm, functionally departmentalized, sometimes decentralized and organized into divisions, where there is a separation of ownership and management and where the tasks of the various levels of management are taken by a hierarchy of full-time professional salaried managers, who are essentially school prepared and not simply practical.

As mentioned in previous chapters, firms with most of these characteristics were not unknown in the business world prior to the process of modern economic growth and naturally continued to exist in the early times and the consolidation and spread of this process between the mid-eighteenth century and mid-nineteenth century. These firms, however, were predominant in the sectors of long-distance trade and transport, were present in the financial sector, but were not typical of the industrial sector. As was also noted in the previous chapters, it was in the same sectors of long-distance trade, transport and finance, especially with the developments associated with the emergence of the railroad, the telegraph and the investment and universal banking that these characteristics have developed, especially at the time of the consolidation and spread of the process of modern economic growth.

The emergence of the large modern firm in the industrial sector can be considered the result of the emergence in the second industrial revolution of technologies very demanding in fixed capital, some of which provided the development of productive processes that took advantage of economies of scale and scope. Due to the sector impact of the innovations referred to in section A of this chapter, this development mainly affected sectors such as the food industry, the chemical industry and the machine manufacturing industry, mainly electrical, and transport equipment. This changed the dominant framework in these industrial sectors, or at least in significant parts of them, up to the middle of the 19th century, raising high barriers to the entry of new competitors and, therefore, the appearance of oligopolistic and no longer competitive almost perfect market structures, as was usual up to that time in productive sectors in the strict sense, or monopoly, as was usual up to that time, for reasons of technological nature or legal privilege, in the sectors of long-distance trade and transport.

Market structures of an oligopolistic nature have two implications: on the one hand, they generate market power for each of the participants, either as a result of their significant weight in the total supply or, as the case may be, as a result of real or constructed product differentiation (by means of advertising, for example); on the other hand, they oblige participants to adopt a strategy to seize and, if possible, condition, that market power (the creation of product differentiation through the use of advertising is once again an example). It turns out, however, that no system of strategies adopted by a group of oligopolists acting in the market of a good leads to a stable equilibrium. There is no need to go into the question deeply, but it must be addressed, since it has clearly conditioned the emergence and development of the large modern firm.

## Short-term strategies in oligopoly

It is possible to classify the possible strategies in the context of an oligopolistic market in four main types:

a) Strategies of competition by price – These strategies lead to situations similar to those in quasi-perfect competition markets, which do not constitute a stable equilibrium because there are alternatives that allow for greater profits in the market as a whole.

It should be noted, however, that there are sometimes situations of price wars, where oligopolists low their prices, even accepting losses, in order to try to exclude competitors from the market. These are, of course, situations which require significant financial capacity at the outset and can only be transient, whether they succeed in their objectives or not.

b) Strategies of competition by quantity – These strategies lead to intermediate situations between those in near perfect competition markets and in monopoly markets; they do not constitute a stable equilibrium because the cooperation strategies allow greater profits in the market as a whole.

c) Strategies of competition by quality – These strategies also lead to intermediate situations between those in near perfect competition markets and in monopoly markets; they do not also represent a stable equilibrium because the cooperation strategies allow greater profits in the market as a whole.

d) Cooperative strategies – These strategies lead to situations similar to those in monopoly markets, which do not constitute a stable equilibrium because, although they allow the greatest profits in the market as a whole, it is always possible for any of the oligopolists individually considered to obtain higher profits through a strategy of competition by quantity or quality.

The instability of situations typical of an oligopoly market often leads to attempts at stabilization through institutional instruments. These instruments can take one of the following configurations:

a) The cartel – A cartel is a strategic coordination agreement between oligopolistic firms that maintain full institutional autonomy. Given that it is always possible to obtain greater profits for any of the oligopolists individually considered through a competition strategy by quantity or quality, a cartel agreement is necessarily very unstable, unless it is given legal status.

b) The coordination committee or trust – To mitigate the instability of the cartel arrangements, it is possible to secure them by handing shares to a coordination committee of the firms involved, to enable the committee formal control of these firms without acquisition of its property. Of course handing involves an act of trust in the committee (hence the English term for the scheme) and is always revocable.

c) The control or holding firm – To overcome the revocability of the coordination committee scheme, it is possible to create a firm to control the firms involved in the scheme by participating in its share capital (or use one of the firms involved in the scheme to this end). It is clear that a holding is a scheme that already involves a reasonable degree of integration between the firms that it controls.

The holding model can be (and was actually) used in situations where the coordination of firms in the same sector is not involved, but where other situations occur, namely the ownership of a group of firms from diverse sectors (usually called a conglomerate) and even the simple management of an investment portfolio containing possibly direct investments (that is to say, investments made for the purpose of controlling the strategic management of investee firms) and portfolio investments (that is to say, investments made solely for the purpose of obtaining income). These firms that control conglomerates or investment portfolios are called holding firms.

## Strategies of growth in oligopoly

It is possible to go further and achieve full integration between competing companies in the market for a particular good, either through their merger or through the acquisition by one of them of the others (the distinction between mergers and acquisitions is partly quantitative, partly formal; a process is generally referred to as a merger when two or more similarly sized firms become a single firm with no predominance of any of them and as an acquisition when one, usually larger, firm takes a dominant role). This is what is termed the horizontal integration strategy.

Horizontal integration aims to gain market power in an institutionally more consolidated manner than is possible through short-term coordination strategies. In fact, the latter are always institutionally reversible in the short run, which is not the case, at least in formal terms, with the result of a merger or acquisition process.

It should be noted that a horizontal integration process often has the additional advantage of making use of the so-called economies of scale, that is to say, reductions in average costs of production with the increase in the scale of production potentially resulting from the existence of high fixed costs or growth of variable cost less than proportional to the scale of production, thus forming a strategy that, in addition to gaining market power, involves the restructuring of the firms targeted for integration.

[On this topic, see Box 5.5 – Production scale and production costs]

It is also common to carry out integration processes between firms participating in different stages of production and distribution of a final good (that is to say, for example, between firms producing a raw material and firms producing an intermediate or a final good using it or between firms producing an intermediate good and firms producing a final good using it or between firms producing a final good and firms distributing such goods or between firms participating in all stages of the production of a given good). This is what is termed the vertical integration strategy. In the case of an acquisition, it is possible to distinguish a downstream acquisition (that is to say, the acquisition of a firm which participates at a later stage in the production process or distribution of the final good by a firm participating at a less advanced stage of production of the final good) and upstream acquisition (that is to say, the acquisition of a firm which participates at a less advanced stage of the production process of the final good by a firm which participates in a more advanced stage of production or distribution of the final good).

Vertical integration aims to reduce transaction costs and to eliminate potential barriers to the constant flow of the production process, either by disruption of the supply of raw materials or intermediate goods, or by disruption of their flow, ensuring the maintenance of efficient use of productive capacity. In any case, it concerns the internalization in the company of previously external functions by creating an administrative and bureaucratic coordination of flows inside the firm to substitute the previously regulation of those flows by the market; this transformation can be described as the substitution of the so-called invisible hand of the market by the so-called visible hand of the management hierarchy.

It is clear that the process of internalizing activities can also be carried out through the creation within the same company of upstream or downstream production or distribution activities (that is to say, marketing, warehousing, assembling, customer support, etc.), even to guarantee more specialized services and adapted to the type of need of the firm's nuclear activity. Here too, one can speak of vertical integration of activities, although this is not done through merger or acquisition processes.

Horizontal and vertical integration strategies are sometimes called defensive growth strategies because they are limited to preserving and increasing market power in relation to the final market for the same good and restructuring the integrated firms in order to increase their joint efficiency.

However, it is also possible to boost a firm's growth by means of market diversification strategies, either by exploiting new geographic markets for the supply of some raw material or intermediate good, or for the selling of the same final goods (note that the multinationals referred to above are a particular case of geographic diversification) or by producing different final goods. These strategies are sometimes called offensive or aggressive expansion strategies, precisely because they diversify geographically or by sector the supply or destination markets. In the case of geographical diversification of supply markets, the purpose is usually to obtain raw materials or intermediate goods at lower costs. In the case of the geographical diversification of the destination markets, the purpose is usually to exploit economies of scale. In the case of sectorial diversification of the destination markets, the purpose is usually to exploit the so-called economies of scope, that is to say, the possibility of producing different goods using common raw materials, intermediate goods or production processes, reducing their average costs by sharing fixed costs. Scope economies are a phenomenon that has become more frequent with the technologies of the second industrial revolution, so it is not surprising that their exploitation emerged associated with this phase of the process of modern economic growth.

It is clear that an offensive or aggressive strategy is more demanding than a defensive strategy, and it is usually necessary to successfully implement the previous conditions by consolidating the competitive position by acquiring organizational and investment capacities.

## Decentralization and organization in divisions

The sector or regional diversification of the activities of a firm resulting from the expansion through an aggressive strategy generally implies its reorganization in divisions, involving a decentralization of the management.

A division is a part of the firm that operates autonomously, although under the strategic choices of the firm as a whole; in particular, a division is characterized by the existence of all levels of management, including some specific strategic management.

[On this topic, see Box 5.6 – Multidivisional company]

## Growth strategies in oligopoly and characteristics of the big modern enterprise

It should be noted that it is following the application of the defensive growth strategies, in particular the vertical integration, and above all offensive growth strategies that arise, or at least are consolidated, in general, the most innovative characteristics of the big modern firm. It is true that the large size is mainly a consequence of the decrease in average costs, in turn resulting from high fixed costs or economies of scale. It is true that departmentalization is an almost inevitable consequence of the large size. However, the multiplicity of establishments is often the result of horizontal or vertical integration processes (of course, in the case of horizontal integration, the maintenance of multiplicity of establishments depends on whether or not these establishments have the optimal scale, a scale that is obviously not static, but can be changed with technological and organizational innovations). On the other hand, decentralization is usually associated with the diversification of markets, leading to the creation of distinct divisions for the management of different business areas (product or region). Finally, the creation of a hierarchy of salaried managers is a natural consequence of the complexity of management tasks, in particular the development of analytical accounting or cost accounting, complementary to traditional descriptive accounting or general accounting; the specialization of traditional management functions, production and supply management, commercial management, human resources management and financial management; and the eventual creation of additional levels in the management hierarchy due to the creation of divisions within the company. This complexity and specialization of management requires, in turn, the prior training of managers, including at higher education level, replacing the traditional training with the practical exercise within the firms themselves.

## The scientific management paradigms

The need for school formation of managers led to the appearance and development of theoretical constructions, which gave rise to the first scientific paradigms of management.

Among the schools of scientific management that emerged in the late nineteenth century was of particular importance the one developed by Frederick Taylor. Taylor was primarily concerned with the design of incentives to increase labour productivity by proposing three main lines of action: the organization of collective work by its decomposition into simple individual tasks; the creation of material incentives in terms of effectiveness in carrying out individual tasks; and the opening of periods of rest in working time, to avoid the appearance of situations of stress and fatigue. These principles were widely applied in the following decades, constituting the basis of the adaptation of the organization of industrial work to the new forms of mechanization that took have taken place since the end of the 19th century.

### Management capitalism

The transformations that have just been examined gave rise to what can be called management capitalism from the perspective of a typology of capitalism based on the models of business management. The expression underlines the fact that a separation of ownership and management has emerged: even strategic management is handed over to top professional managers, limiting the core of the owners to control and, as a rule, to ratify their decisions. In other words, in management capitalism, the management of the main capitalist organizations came to be practically fulfilled by a hierarchy of professional managers.

[On this topic, see Box 5.7 – Typology of capitalism and models of business management]

### The emergence of the big modern firm in the United States of America

The development of managerial capitalism was clearly more precocious in the United States (it may be dated there from the time of the first globalization) and only later spread to the other national economies, even to the most highly developed ones in Europe (in those economies their beginnings may be dated from the period between the two world wars and their full development from the second post-war of the twentieth century).

The early development of the big modern firm in the United States of America can be seen as a result of the size of the market due to the large geographic, demographic and economic size of the United States of America and the dynamism of the market provided by the enlargement of its area into spaces formerly occupied by predatory local economies and by the growth of its population and economic activity. On this point, it should be noted that the United States of America became, during the period now under consideration, on the one hand, the largest national economy in the world, with the United States gross domestic product surpassing the British at the end of the 19$^{th}$ century, and the most developed national economy in the world, with the per capita gross domestic product of the United States surpassing the British at the beginning of the 20th century.

It was in the commercial distribution sector that, taking advantage of the potential opened by the progress of transportation, the modern big firm began to develop in the United States of America. In fact, the emergence of large department stores, retail chains and mail order companies involved new forms of departmental organization and the creation of teams of managers to carry out different functions and distribute large volume of different products through different markets at a great distance, activities totally different from those carried out by the small traditional retail trade and even by the traditional wholesale trade having as typical agent the traveling salesman.

In the case of the United States of America, there seems to have been a greater precocity of downstream vertical integration processes, particularly by firms producing final goods in the direction of distribution activity. This is a consequence, on the one hand, of the inability of traditional trade to place on the market the large quantities of goods that could be produced with the new technologies and forms of organization introduced in the period now under consideration, on the other hand, of the requirement of capacities storage and transport facilities for the handling of many of the goods produced by new industries. For example, food products often required cold storage and rapid consumer placement, under penalty of deterioration; complex mechanical instruments required demonstration, assembly and post-sale support services such as repairs; progressively, customer credit also became an important element of marketing. This did not mean, however, that upstream vertical integration processes were absent, since the internalisation of the operations in this direction made it possible to ensure the timely supply of raw materials and intermediate goods, reducing the costs resulting from the increased storage market dependence, since it is necessary to guard against the risk of supplier failures, either from fluctuations in production, or even from breaches of contract, by suppliers. On the other hand, upstream vertical integration could be a means of avoiding potential opportunistic behaviour on the part of suppliers who previously guaranteed supplies and of making it difficult for competitors to enter the market, especially if the integrated good or function in the company was very specific or if, with integration, the installed firm gained comparative advantages by exploiting economies of scale or even scope.

The main reasons explaining the slower flowering of management capitalism outside the United States of America are the smaller size of the national markets of most other highly developed countries, as a result of the smaller geographic, demographic and economic size of the countries concerned, its lower dynamism, resulting from lower growth rates in the period under consideration. Moreover, the greater inequality in the distribution of income has made it difficult to develop mass-demand markets in relation to many goods whose sectors were relevant in the development of the big modern firm in the United States of America – the food and household appliances industries are examples of this phenomenon. It is also possible to point out as relevant factors peculiar to the institutional framework of these countries, particularly the existence of greater tradition and solidity of the models of family and financial capitalism, or the existence of legal protection of forms of business coordination in oligopoly markets such as cartel, a fact mainly present in Germany and totally absent in the United States of America, which have even developed early legal mechanisms for the protection of competition and the fight against arrangements between oligopolistic companies.

[On this topic, see Box 5.8 – Defence of competition]

Moreover, it should be noted that the globalization process itself intensified the international specialization of productions, even among highly developed economies, and that this led to differences in the productive structure, involving different relative importance of the leading sectors of the second industrial revolution. This has also conditioned the pace of diffusion of the big modern firm in some countries.

Of course, and in all national economies, the importance of small and medium-sized firms has remained very large in productive structures when the whole economic activity is considered, not just the leading industrial sectors of the economy.

## D – Other aspects of the time of the first globalization

Among the other aspects that characterized the period of completion of formation and the beginnings of the contemporary world economy are international migrations and the construction of important colonial empires by various powers, especially European ones. In addition, reference should be made to the changes in the relative positions of the major economic powers in the world context and to cyclical fluctuations.

### International migrations

The international migrations that have taken place in the period under consideration stand out because they have been the most important from a quantitative point of view of all recent history, and possibly of the whole history of humanity. Never before, and not since, has such a significant part of the world population changed their region of residence in such a short period of time.

The origin of these international migrations was mainly in Europe, beginning mainly in North-West Europe and then spreading to the whole continent, including Mediterranean Europe and Eastern Europe. The most important destinations for these migrations were what may be termed the European overseas off-shots, that is, colonies or countries predominantly populated by populations of European origin and where European institutions prevailed (countries of the American continent, Australia and New Zealand). In another perspective, they were directed primarily to regions of the world where previously there were societies with local predatory economies, providing the occupation of these previously almost empty regions when compared with the population densities in the regions where societies with world-economies existed and even in the regions where there were societies with cultivation local economies. However, it cannot be forgotten that emigration of European origin also provided the majority of the specialized staff necessary for the whole process of establishing transport and communication routes and economic activities with modern technologies in most of the world and the administrative staff of the colonial empires then created.

## The colonial empires

The period now under consideration has also seen the establishment of the political dominance of some colonial powers, especially European powers, over vast areas of the world, in particular:

(a) Africa, which was so widely scrambled for that, on the eve of World War I, there was only one effectively independent state with capital in Africa, Ethiopia, as well as a state which, although formally independent, had been the initiative and depended largely from private American organizations, Liberia. The rest of the continent consisted of colonies, in order of size of the empires, Great Britain, France, Belgium, Portugal, Germany, Italy, and Spain.

(b) South Asia, where India (with the exception of small areas controlled by Portugal and France) constituted an empire controlled by Great Britain, which also extended its dominion over the island of Ceylon, Burma and Malaysia, and over possessions in Arabia (as Aden); Eastern Indochina (Cambodia, Laos and Vietnam) had fallen under the domination of France; and Indonesia had fallen under the dominion of the Netherlands (except part of the Borneo, controlled by Great Britain, and East Timor, controlled by Portugal).

(c) East Asia, where some Chinese seaports (notably Shanghai) were under control of several countries (although only Hong Kong and Macao were formally colonies, respectively of Great Britain and Portugal), and Japan had established its dominance, more or less formal, over Korea, Taiwan and Manchuria.

(d) The islands of the Pacific Ocean, shared between Great Britain, France, Germany and the United States of America (until the late nineteenth century also Spain, which dominated, especially the Philippines, which were taken away by the United States of America in 1900).

## The great economic powers

Although Britain remained the leading world economic power in the period under consideration, it should be noted that this position was being threatened by two facts:

a) First, the consolidation of the process of modern economic growth in other countries of considerable size in Europe, notably France and Germany, which have thus become potential rivals in the struggle for world hegemony.

b) Second, the rise of the United States of America, which, as already pointed out, exceeded Great Britain, both in terms of total domestic product and per capita domestic product.

However, Britain's role as the leading colonial power and principal investor abroad, especially in the United States of America, and the monetary and financial role of London maintained a relative British hegemony in the world economy.

It should also be noted the emergence at this time of some other countries of considerable size that began the process of industrialization leading to modern economic growth. Special mention should be made of Italy, Russia and Japan.

On the other hand, another of the largest economies in the world, China, entered a diverging path in relation to most of the rest of the world, not only in relative terms, but even in absolute terms, measured by per capita domestic product, which tended to stagnate and even to diminish during practically the whole century that lasted from the mid-nineteenth century to the mid-twentieth century.

### The economic situation

The era of the first globalization was, in general, a time of economic expansion, sometimes termed the 'belle époque' (or the first golden age) of the world economy. This does not mean that the economic situation did not continue to be disturbed by the economic fluctuations already characterized in the previous chapter, in particular by crises, recessions, and even more or less periodic depressions.

## Fundamental topics of Chapter 5

• Technological and institutional innovations that allowed the completion of the process of planetization of the Euro-Atlantic world-economy and how they are related.

• Forms of integration of global economies into the contemporary world economy, their relation to the former characteristics of these global economies and consequences for the later development of the societies involved.

• Potential advantages of international free trade and possible reasons for exceptions.

• Functioning of the monetary system of the gold standard and differences in relation to the international and national monetary systems of the present day.

• The big modern firm and its characteristics as a consequence of the innovations introduced in economic life at the end of the nineteenth century and the new forms of market that these innovations have made possible and potentiated.

## Questions for reflection

• Would it be reasonable to say that the technologies of the so-called first industrial revolution, particularly the steam engine, only changed the ways of producing, while the technologies of the so-called second industrial revolution, namely electricity and the internal combustion engine, changed not only the way production is carried out, but also how production is consumed ?

• To what extent and for what reasons were the conclusion of the process of planetization of the Euro-Atlantic world-economy and the formation of colonial empires of some European powers at the end of the 19th century related ?

• To what extent and for what reasons were the development of the big modern firms, the spread of oligopoly markets and the emergence of antitrust measures associated ?

## Box 5.1 – Forms of integration of global economies into the contemporary world economy

Self-sufficient economic spaces that existed prior to the beginnings of the process of modern economic growth had, as explained in Chapter 1, different characteristics, and these characteristics significantly conditioned the way they were integrated into the contemporary world economy.

Areas with non-sectoralized predation local economies were generally occupied by immigrants, most of them mainly of European origin, because the poor technology and the low population density of the societies therein did not allow these societies any effective resistance against this process of occupation of their territories.

Spaces with non-sectorialized or sectorialized cultivation local economies were generally subject to political colonization and economic exploitation by those countries that dominated them politically because the poor technology of these societies did not allow them any effective resistance against the process of political colonization of their territories. From the demographic point of view, however, the population density attained by societies with cultivation local economies prevented a significant transfer of immigrants to their territories. On the other hand, foreign economic and political control, as a rule, brought about significant cultural transformations. Decolonization, usually in the second half of the twentieth century, almost always gave rise to societies shaped by a social framework established by the process of colonization and not by societies existing before it.

Spaces with tributary world-economies were generally subject to formal or informal political colonization and economic exploitation by countries that dominated them politically because the technological superiority of the societies involved in the process of modern economic growth did not allow societies with tributary world-economies an effective resistance against the process of political colonization of their territories. From the demographic point of view, however, the population density reached by these societies prevented a significant transfer of immigrants to their territories; and the sophistication of previously existing cultural structures has generally allowed decolonization, usually also in the second half of the twentieth century, almost always to originate societies framed by the social framework established by societies existing before the colonization process and not by societies created by this process.

However, some societies with tributary world-economies were able to avoid any process of political colonization, formal or informal, and to trigger relatively early processes of modern economic growth. Japan and Russia are the two examples of this different kind of evolution.

The following table summarizes the ways in which global economies were integrated into the contemporary world economy.

**Table 5.1 – Forms of integration of global economies into the contemporary world economy**

| Type of integrated economy | Impulse for integration | Form and immediate consequences of integration | Main Cases | Political situation | Comments |
|---|---|---|---|---|---|
| **Tributary world-economies** | Volunteer | Integration in the semi-periphery of the world economy<br>Attempt to modernize | Russia | Independence | Significant role of the State in the attempt to modernize<br>Maintenance of previously existing cultural framework |
| | Forced | | Japan | | |
| | | Integration into the periphery of the world economy<br>Tendency for economic stagnation | India<br>China<br>Turkish Empire | Colonies (formal or informal) and later independence | Maintenance of previously existing cultural framework |
| **Cultivation local economies** | Forced | Integration into the periphery of the world economy<br>Tendency for some economic expansion | South Africa<br>South East Asia | Colonies and later independence | Deep change of previously existing cultural framework |
| **Predatory local economies** | Forced | Integration into the periphery of the world economy<br>Tendency for great economic expansion | America<br>Siberia<br>Australia | Integration in different states | Destruction of previously existing societies |

## Box 5.2 – Advantages and disadvantages of free trade and protectionism

The question of the advantages and disadvantages of adopting free-trade or protectionist policies has been one of the most controversial of economic theory and applied economics.

Economic theory clearly demonstrates that free international trade maximizes production and consumption possibilities in the short term. However, it can be argued that the adoption of a free-trade policy is not appropriate in specific concrete situations for one of two reasons:

• the existence of unfavourable non-economic effects (for instance, for national security, because of the disappearance of relatively inefficient activities, which may be vital for strategic reasons);

• the existence of unfavourable long-term economic effects (for instance, specialization of the national economy in sectors with low technological dynamism or low income elasticity, leading to negative impacts on development and economic growth).

The existence of unfavourable non-economic effects may justify the protection of relatively inefficient economic activities, which are considered important for extra-economic reasons.

The existence of unfavourable long-term economic effects may justify the protection of economic activities, which are relatively inefficient in the short run, but have some potential of development (for instance, through technological progress) or growth (for example, through demand dynamics). In principle, these activities should have the capacity to become relatively efficient (and hence to waive protection) in the long run. That is why this argument in favour of protection is called the argument of nascent industries.

## Box 5.3 – Commodity monetary systems and conventional monetary systems

A commodity monetary system is a monetary system in which the monetary unit is defined as a specific quantity of a given commodity and the means of payment either consists of the commodity in which the monetary unit is defined (and therefore have an intrinsic value in that commodity) or have a guaranteed value in terms of that commodity. The monetary system of the gold standard, which was in force at the time of formation and the beginnings of the contemporary world economy, was, as can be seen from the description in the text of chapter 5, a commodity monetary system, the commodity being gold.

A conventional monetary system is a monetary system in which the monetary unit does not have its value defined in terms of any commodity and where the means of payment have no intrinsic or guaranteed value in terms of any commodity. The monetary system of the contemporary world economy from the mid-1970s onwards is, as can be seen from the description in the text of Chapter 8, a conventional monetary system.

Chapters 6 and 7 explain how the international monetary system of the contemporary world economy evolved from a commodity system to a conventional system.

## Box 5.4 – Multinational firms

A multinational firm is a firm owned in its home national economy, which controls operations or income-generating assets in host economies. It should be noted that under this definition an exporting firm is not a multinational, as well as firms that make loans to economic agents operating in a borrowing national economy; a multinational holds the entire ownership of subsidiary firms or part of the ownership of affiliated firms based in another national economy.

It makes sense to distinguish, between portfolio investment, which is aimed at obtaining income, without strategic control of the investee firm, and direct investment, which involves the strategic control of the investee firm (a distinction also valid in a purely national context). In the case of multinationals, direct investment is, of course, referred to as foreign direct investment, a denomination which, of course, also includes subsidiaries.

It should also be noted that direct investment can take the form of brownfield investment, when a pre-existing firm in the host economy is acquired by a multinational or the form of greenfield investment, when the multinational builds up a totally new firm (a subsidiary) in the host economy.

On the other hand, it should be noted that the internationalization process of a firm can take intermediate forms between the export of goods and the creation of a subsidiary, for example, the use of agents, the creation of marketing and distribution firms, the granting of rights to use trademarks under the condition of compliance with franchising standards, or the realization of joint-ventures with local economic units. These intermediate forms can be used to allow the firm a progressive knowledge of potential direct investment destinations. In this context, the constitution of subsidiaries can be interpreted as a strategy to protect against high transaction costs, such as those resulting from the process of selecting local partners and agents and the possible opportunistic behaviour on the part of these, which would possibly lead to litigation costs.

The realization of investment abroad is explained by the combination of the availability and the specific capacities of the investors and the attractiveness of the host economies where the investment is made.

The choice of the host economies is usually explained by the geographic, cultural, or political proximity of these economies. In other words, foreign investment tends to be directed towards geographic neighbours, culturally similar economies (by linguistic or institutional characteristics, for example), or politically related (due, for example, to formal or informal colonial rule, or to alliances).

## Box 5.5 – Production scale and production costs

It is reasonable to assume, as a general rule, the existence of a direct relationship between the scale of production and the costs of production. In other words, it is reasonable to assume that, as a general rule, increasing the scale of production implies an increase in production costs.

It is no longer reasonable, however, to suppose the existence of any general rule of proportionality between production scale and production costs, for two reasons.

Firstly, because there are fixed costs, which, by definition, are independent of the scale of production, although, of course, they condition it. In other words, the level of fixed costs does not vary with the scale of production, although given a fixed cost level there is a feasible maximum for the scale of production and there is normally also a minimum production scale below which it is preferable not to carry out any production. It should however be noted that while the maximum scale of production achievable with a given level of fixed costs is determined for technological reasons (without a certain amount of infrastructure, equipment, etc., implying a certain level of fixed costs, certain production quantities are not possible), the minimum scale of production below which it is preferable not to carry out any production, if any, is determined by market reasons (it is the production scale below which it is not possible to cover even variable costs).

Secondly, variable costs depend, by definition, on the scale of production, but in relation to them it is not also possible to assume a relation of  proportionality.

The relationship between variable costs and the scale of production may assume, for technological or market reasons, one of three forms – increasing returns to scale, constant returns to scale or declining returns to scale.

It is said that there are increasing returns to scale, or economies of scale, when increasing production requires a less than proportional increase in variable costs, either because the physical increase in production requires a less than proportional increase in the productive factors employed (increasing technology-based returns to scale), or because the increased scale of factor acquisition reduces its unit price (increasing market-based returns to scale).

It is said that there are constant returns to scale when increasing production requires a proportional increase in variable costs, generally because the physical increase of production requires a proportional increase of the productive factors employed and because the increase in the scale of factor acquisition does not change its unit price

It is said that there are decreasing returns to scale or diseconomies of scale when increasing production requires a more than proportional increase in variable costs, either because the physical increase in production requires a more than proportional increase in the productive factors employed (decreasing technology-based returns to scale) or because the increase in the scale of factor acquisition increases its unit price (decreasing market-based returns to scale).

## Box 5.6 – Multidivisional firm

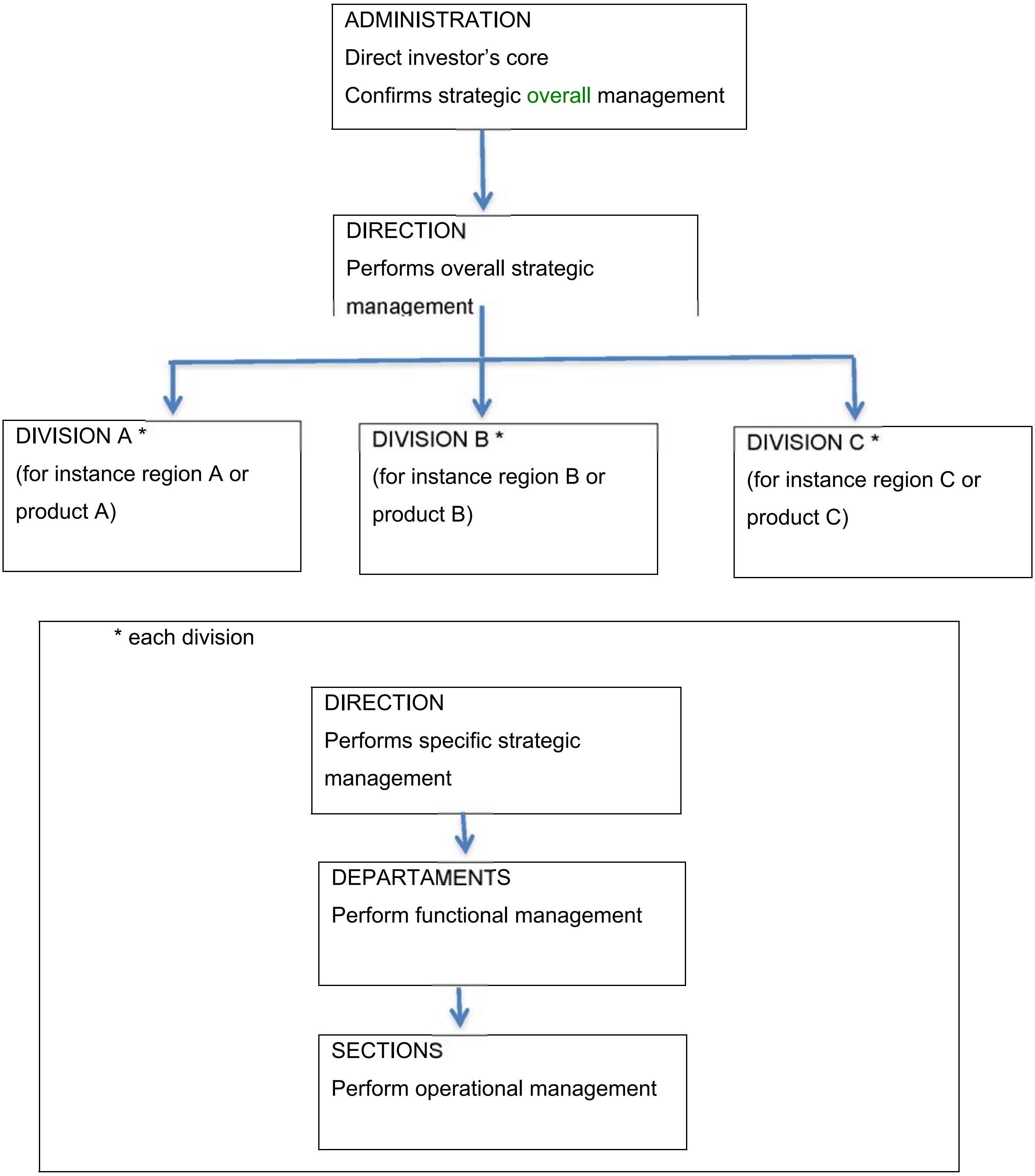
A multidivisional firm, that is to say, a decentralized firm organized in divisions, is characterized by the existence of a plurality of hierarchical levels of managers: in the central structure of the firm, there are at least two hierarchical levels of managers, the highest ratifying only the decisions related to the overall strategic management and the other directly responsible for the overall strategic management; in general there will be another hierarchical level of managers, responsible for functional and operational management; within each of the divisions, there are usually at least three hierarchical levels of managers, the highest responsible for strategic management, the intermediate responsible for functional management and another responsible for operational management. The hierarchy can, however, become much more complex and have more hierarchical levels.

As suggested in the chapter's text, decentralization of firms and their organization into divisions emerged as a result of aggressive growth strategies for diversifying markets in regional or product terms. This diversification created the need for a specific strategic management of activities related to each of the regions or to each of the products where the firm operates and which constitute distinct markets. It is this need for specific management that justifies decentralization and the creation of divisions. The size and complexity of each division require that the organization of its management has the same characteristics as a functionally departmentalized firm; and the same is true, of course, with the firm as a whole, aggregating the various divisions.

From the perspective of the typology presented in box 5.7, decentralized firms organized in divisions are, as a rule, management dominated firms.

In these circumstances, the typical organizational chart of a firm decentralized and organized in divisions (sometimes referred to as an M-type firm, from the term multidivisional) can be represented by figure 5.1.

**Figure 5.1 – Organizational chart of a decentralized company organized in divisions**



## Box 5.7 – Typology of capitalism according to the core of strategic business management

In firms, and especially in firms with limited liability, it is normal to have a core of owners, or partners, which carries out what is called a direct investment, that is to say, an investment that aims to take control of the management. The other partners have a passive role of mere holders of a portfolio investment, that is to say, an investment aimed solely at obtaining income.

It is in this context that a typology may be built that classifies firms according to the relation between ownership and management, and in particular according to the form of constitution of the core of strategic management. This leads to distinguish:

• personal firms, in which strategic management is carried out by individual owners, the remaining levels of management being carried out equally by owners with the support of specialized employees;

• family firms in which strategic management is carried out by a core dominated by owners from the same family, the remaining levels of management being carried out by specialized employees or by a hierarchy of professional managers;

• financially dominated firms in which strategic management is carried out by a core dominated by representatives of financial firms who, for the credits or investments provided to these organizations, have acquired control of their property, the remaining levels of management being carried out by specialized employees or by a hierarchy of professional managers;

• managerial firms in which strategic management is controlled by a core of owners, which, as a rule, is limited to ratifying decisions made by top professional managers, the remaining levels of management being carried out by a hierarchy of professional managers.

This typology of companies allows, in turn, to build a typology of sectors of a capitalist economy, or even of a capitalist economy as a whole, distinguishing:

• personal capitalism, in which capitalist organizations of the personal business type predominate;

• family capitalism, in which capitalist organizations of the family business type predominate;

• financial capitalism, in which capitalist organizations of the financially dominated type predominate;

• managerial capitalism, dominated by capitalist organizations of the managerial type.

## Box 5.8 – Defence of competition

The spread of markets of imperfect competition, and especially of oligopoly, outside the traditional scope of natural or legal monopoly markets, provoked the intervention of public authorities since the end of the nineteenth century to defend competition, first in the United States of America, then gradually in most developed countries and even in most countries, as the forms of the great modern enterprise became widespread.

The defence of competition generally involves three fundamental elements:

a) The prohibition of cartels between oligopolistic firms.

b) The prohibition of coordination schemes of the trust type between oligopolistic firms.

c) The prohibition of the acquisition of positions considered to be excessively dominant in the market through holding firms, or any of the long term growth strategies set forth in the text of the chapter.

The implementation of a policy of defence of competition raises three main problems:

1. The articulation between the administrative component (necessary due to the often technical and complex nature of the decisions to be taken) and the judicial component (necessary due to the frequently conflicting nature of the decisions to be taken) of the processes.

2. The often legitimate nature, in terms of the principle of capitalist private initiative, of the actions that call into question the competition.

3. The often secret nature of the actions that challenge competition once the public system of defence of competition is established.

These problems are clearly illustrated by the use, especially in the United States of America, in the decades between the late nineteenth century and the Great Depression, of agency schemes, often disguised as intermediaries, as a way of turning bans on cartels and trusts then in force. It has been apparent in this field a competition between the search for imaginative solutions by the interested parties in the acquisition of market power and the discovery and outlawing of these solutions by the public authorities interested in restricting market power in this field.

# 6 – The times of globalization backlash (the world wars and the period between the world wars of the twentieth century)

Between the middle of the second decade of the twentieth century and the mid-1940s of the twentieth century, the world economy and society lived a period characterized by a clear retreat in the process of globalization. This situation, which was clearly exceptional at the time of the final stages of formation and of the existence of the world economy and society, was associated with two other exceptional facts: the existence of two military conflicts, the world wars, involving in direct confrontation the main powers of the world society; and the occurrence of the greatest depression experienced by the contemporary world economy throughout its existence, which was properly known as the Great Depression. In addition, the first systematic attempts to construct socialist economies and societies with a centrally planned functioning, alternative to capitalist economies and societies with a market operation, hitherto always associated with the formation and existence of the world economy and society; and especially in response to the situation created by the Great Depression, there was an increased intervention by the public authorities in economic life which proved to be partly irreversible, irrespective of any subsequent efforts to reduce it.

All of this has, of course, created a new context for the formation of markets and the performance of firms. In particular, it implied a retreat, in some respects relative, in other absolute, of the movements of goods, capital and people that had characterized the world economy in the final stages of its formation and in the initial stages of its existence. It did not, however, change the trend towards the spread of what was characterized in the previous chapter as the big modern firm, a spreading that continued throughout this period of globalization backlash.

## A – The economic short term situation in the period of the globalization backlash

Given the relevance of the situations of war and depression to the evolution of the world economy and society throughout this period, it is important to begin with a brief review of these situations.

### World War I

The First World War radically altered some of the basic characteristics of the life of the world economy and society in its earliest days.

Firstly, the war situation interrupted direct economic relations between the belligerents in opposing camps and disturbed, mainly due to military operations of blockade and U-boat warfare, the movements of goods and people in general.

Secondly, all belligerent countries gave priority to victory in the war over any economic considerations. That is why they all sought to mobilize and use the necessary resources efficiently, often resorting to command and not to market to do so (a situation associated with expressions such as war economy and war socialism); and all issued the necessary monetary means to mobilize and use resources through the market, regardless of the internal depreciation (expressed in the rise in the general price level) and external depreciation (expressed in exchange rate devaluation) of the monetary unit that this issuance often caused.

As a consequence of these facts, the world economy shifted in the short run and structurally away from what it was before the conflict. In the short run, economic activity had to adapt to the mobilization of resources for war and the impossibility of carrying out transactions banned or disturbed by the state of war. As a consequence, international trade patterns and financial flows were significantly altered and movements of people were severely limited. These transformations proved to be reversible, albeit only after a period of reconversion characterized by a crisis. Structurally, mechanisms of public intervention in economic life were created that were difficult to dismantle after the conflict; and in particular it was impossible to resume the monetary and financial system of the gold standard that had prevailed in the early days of the contemporary world economy. These transformations were, at least partially, irreversible.

[On this topic, see Box 6.1 – World War I]

### The immediate post-war

The end of the war was followed by a period of economic crisis, usually called the crisis of reconversion, caused by the need to readjust the use of resources to the new conditions created by the abrupt disappearance of a significant part of the previous demand by the belligerent governments. At the same time, efforts were made to "return to normalcy", to use an expression of the time, that is to say, to dismantle the structural transformations which the war originated. These efforts proved to be unsuccessful, at least partially, for several reasons.

As far as the monetary system was concerned, it was impossible to re-establish the gold standard system with pre-war parities, because internally the monetary issues had reached such amounts that only in the United States of America there was enough gold to provide credible backup for a restoration of convertibility of means of payment into gold; and with the exception of the United States of America and Japan, monetary issues had led to price rises that made any process of deflation to return to pre-war prices have serious recessionary consequences for the level of economic activity; at the external level the changes in parities had been of such magnitude that the restoration of the old parities would cause significant disturbances in the commercial and financial transactions. As the gold standard remained an ideal of reference, a surrogate, called the gold-exchange standard, was designed. Instead of full and direct convertibility of all means of payment into gold, it was envisaged that only a few countries, whose currencies would become the anchors of the system, would restore direct convertibility to gold (possibly with definitions of the monetary unit different from the pre-war ones and with restrictions, in particular only by converting relatively high amounts); the remainder countries would establish only indirect convertibility to gold through direct convertibility in one of the anchor currencies (possibly with exchange rates different from the pre-war ones). This scheme reduced the amount of gold required as a reserve and allowed for adjustments of the definitions of the monetary unit and exchange rates. Only the United States of America, Great Britain and France restored direct convertibility (France with a new definition of its monetary unit, Britain and France with restrictions on amounts); the US dollar, the British pound sterling, and the French franc thus became the anchor currencies of the system of the gold-exchange standard of the twenties of the twentieth century. The choice of the reference anchor currency by the other economies was fundamentally conditioned by the proximity of their respective economies to each of those countries, particularly in terms of commercial and financial transactions.

Monetary and financial problems were exacerbated by the fact that, during the war, war debts with relatively short repayment terms accumulated between the countries belonging to the same belligerent alliances, and that the European winners demanded the payment of war reparations from the defeated powers, also in large sums and in short deadlines. The need to obtain resources for payment of debt servicing and war reparations provoked further upheavals in the money and financial markets, with very large devaluations of the currencies of the main net debtors and with the subsequent initiation or continuation of inflationary processes. In 1923, payments on war debts and reparations were widely suspended, while some countries in Europe, notably Germany, Austria, and Hungary, were in a state of hyperinflation. In the following year, monetary stabilization and a restart of debt and war reparations payments was achieved, with deadlines being extended and ultimately with the financing help of American banks. In practice, most war debts and reparations tended to become debts to the American banking and financial system.

The deviation of resources for military purposes meant that during the war some of the traditional suppliers of certain types of goods, mainly industrial goods, reduced or suppressed supplies on the world market. In response, a number of countries, especially outside Europe, have embarked on industrial capacity building processes to meet unmet needs. Once the conflict was over, it would be possible to restore traditional trade flows, but even where the productive capacities created were not able to compete with traditional suppliers, there was reluctance to renounce them. The result was a generalized strengthening of customs protectionism, clearly restricting international transactions below what they had been prior to the war. This general environment of protectionism was also pushed further by the fact that Britain had abandoned its free-trade tradition as a way of trying to compensate for the decision to restore the gold standard with direct convertibility and without changing its pre-war definition of the monetary unit, which had significant deflationary effects on its economy.

The capital movements, which had been quite significant before the conflict, were equally greatly reduced after it. In part this was a consequence of the monetary and financial instability, which increased the risks, especially exchange risks, of international business. In part this was a consequence of economic and political instability, which increased the risk of loss of control of the investments made. This was partly a consequence of the structural evolution of the world economy, a development which, due to the reduction in absolute terms of certain economic activities and in relative terms of the international transactions of goods, diminished the expected profitability of effective or potential investments.

Finally, international migrations, which had been quite significant before the conflict, also declined considerably after it. This evolution was largely independent of the war because it simply resulted from the fact that the spaces outside Europe to which migratory flows had been primarily directed since the mid-nineteenth century were no longer almost empty spaces but had been significantly populated by former emigrants, mainly of European origin. In addition, the gradual awareness of this fact led the countries to which immigrants traditionally went, beginning with the United States in the immediate aftermath of the war, and then little by little all others, to legally restrict the admission of emigrants, practicing what was called the closed door policy at the time. In any case, this evolution added an additional element to the environment of globalization backlash that characterized the first post-war period of the twentieth century.

A last relevant aspect of the first post-war scenario of the twentieth century was the coming to power of socialist parties in some European countries, triggering the first attempts to build central planning socialist economies alternative to market capitalism that had until then been the only economic system of the contemporary world economy. The structural transformations thus triggered will be discussed below in sections B and D of this chapter. It should be emphasized, however, that the repudiation of war debts and the nationalization of foreign investments by the communist government of Russia made a very important contribution to the disruption of international financial life in the immediate post-war period.

### The prosperity of the second half of the twenties of the twentieth century

The implementation of the international monetary system of the gold-exchange standard after 1922, the subsequent monetary and exchange rate stabilization, and the resumption of payments on debt and war reparations allowed the second half of the twenties of the twentieth century to witness a period of prosperity, particularly clear in the economy of the United States of America.

The existence of three anchor currencies in the international monetary system of the gold-exchange standard led to the formation within this system of three monetary blocs, made up of the countries that linked their currencies to each of the anchor currencies: the sterling block, made up of Great Britain, the countries of the Commonwealth and the British Colonial Empire and European countries with particularly intense economic relations with Great Britain; the dollar bloc, made up of the United States of America and most of the countries of the American continent; and the franc block, made up of most of the countries of continental Europe.

## The Great Depression

The period of prosperity, however, was rather fleeting, for in 1929 the United States of America plunged into a crisis that swept the entire world economy and became the greatest depression ever experienced by the contemporary world economy throughout its existence.

The Great Depression was triggered in October 1929 by the collapse of stock prices in New York as a result of the bursting of a speculative bubble that had accompanied the prosperity of the American economy during the previous years. Its transmission to the United States as a whole and to the world economy as a whole over the following years was carried out by monetary and trade mechanisms. The domestic monetary mechanisms first involved the need for the US banking system to leverage the credit it had granted during the period of prosperity on the basis of collateral made up of speculative-priced securities. The process led to a wave of bank failures in 1931 and a significant reduction in economic activity and employment in the United States due to the contraction of credit and the money supply in circulation by the reduction of bank money. External trade mechanisms led to a reduction in external demand on the part of the United States of America due to reduced economic activity and a sharp increase in protectionism as a way of trying to maintain a positive balance of payments. This action triggered identical responses from the trading partners of the United States of America, leading to a general reduction in commercial transactions and negative impact also on the level of economic activity and employment. Foreign monetary mechanisms involved the cessation of debt repayments and war reparations, especially to the American banks that had financed the resumption of these payments since the mid-1920s, which accentuated the credit crunch in the United States. It all led to the collapse of the gold-exchange international monetary system, with the suspension of the convertibility of the British pound in 1931, the US dollar in 1933, and the French franc in 1936, and the widespread adoption of fluctuating and strongly volatile exchange rates affected by interventions by the monetary authorities.

Curiously, the collapse of the gold-exchange international monetary system did not cause the destruction of the monetary blocs to which it had given rise. In fact, the predominant orientation of the financial and commercial transactions within the same monetary space did not dissolve, even sometimes intensified, throughout the 1930s.

[On this topic, see Box 6.2 – The Great Depression]

One of the most important consequences of the Great Depression was the intensification of public intervention in economic life as a response to the apparent ineffectiveness of the policies of fiscal and monetary neutrality usually followed at the beginning of the crisis. This increase in government intervention in economic life has turned out to be a structural transformation of the contemporary world economy and is analysed in more detail in sections B and D of this chapter.

### The Second World War

After the Great Depression, between 1939 and 1945, a new conflict broke out directly involving the principal powers of the World among themselves. In its most immediate economic consequences, World War II was very similar to World War I. The main difference was that the progress made in aviation allowed strategic bombing to destroy the enemy's productive capacity in World War II, something that was not yet possible in World War I. This made the destruction of material resources of production clearly greater in World War II than in World War I.

The long-term consequences of World War II turned out to be quite different from those of World War I, because there was an effort to avoid the problems that had occurred about a quarter of a century before, an effort that had some success. This effort was, however, carried out separately by the countries that remained as capitalist market economies and by the countries that undertook the attempt to build centrally-planned socialist economies. This separation led to a division of the world economy in the decades after World War II. This division will be the main theme of the next chapter.

[On this topic, see Box 6.3 – The Second World War].

## B – The institutional framework of the globalization backlash

The institutional framework created by the succession of short-term situations that have just been recalled was marked by three lines of force: nationalism, state interventionism in economic life and socialism.

### Nationalism

The world wars naturally generated an atmosphere of nationalism, with repercussions on economic life. No matter how great the mutual aid between allies, each country sought to rely primarily on its own strength to win the war; and this implied, as far as possible, self-sufficiency in economic terms.

The environment of nationalism was maintained during the period between the two world wars. Its main manifestation in economic terms was protectionism, especially through customs duties. Almost all countries, from the traditionally free-trade Britain to the traditionally protectionist United States of America, erected higher custom barriers than they had before the First World War, reaching the peak, during the whole existence of the contemporary world economy, in the Great Depression.

Another area in which economic nationalism had special consequences was foreign investment. The absence of discrimination between national investors and foreign investors in economic activities that were not considered to be under government scope, which was the rule at the time of completion of the formation and the beginnings of the contemporary world economy, was generally replaced by discriminatory treatment, usually more unfavourable to the foreign investor. Meanwhile, infrequent but not exceptional measures of promotion of property of the assets by nationals (not necessarily nationalization) were taken.

### Intervention of public authorities in economic life

The mobilization of resources in wartime was not based primarily on market mechanisms, but rather on command mechanisms, for example in compulsory military service, requisition of consumer or production goods when necessary for military use and planning of production in sectors considered as strategic, often by entities involving the government and the main entrepreneurs of these sectors.

The 'return to normalcy' of the first post-war of the twentieth century involved the dismantling of the schemes of state control of the economy, but the intervention of the public powers in economic life could not go back to what it had been before the conflict for three reasons: first because the acceptance of economic nationalism required, at least, the intensification of protectionism already mentioned; secondly, because the need to mobilize financial resources for the payment of war debts and reparations demanded in most countries an increase in taxes and the presence of the state in the financial markets in order to obtain those resources; thirdly, because the advance of socialist ideas demanded the maintenance of state control schemes on large firms and on sectors considered strategic, if not the comprehensive central planning of economic life.

The Great Depression brought an intensification of this interventionism in times of peace for two reasons: on the one hand, it seemed possible and desirable in almost all countries to carry out a short-term countercyclical economic policy; on the other hand, it seemed possible and desirable in many countries to initiate processes of transformation of economic structures, which were supposed to reduce the risk of a recurrence of a phenomenon such as the Great Depression.

The implementation of a short-term anti-cyclical economic policy was based on two fundamental instruments: the fiscal instrument and the monetary instrument. The use of the fiscal instrument in the short-term anti-cyclical economic policy basically implied public expenditures not compensated by effective public revenues, generating negative effective balances in the public accounts, as a stimulus to the level of economic activity. The use of the monetary instrument in the short-term anti-cyclical economic policy basically implied an increase in the quantity of money in circulation and the lowering of the interest rate by the monetary authorities as stimuli to the level of economic activity.

The transformation of economic structures to reduce the risk of recurrence of a phenomenon such as the Great Depression involved some relatively generalized measures, others specific to certain countries. Among the relatively generalized measures are measures to regulate banking activity and financial speculation and the development of social security systems. Among the specific measures of certain countries are the adoption of partial aspects of socialist programs.

## Regulation of banking and financial activity

Following the banking crisis that accompanied the so-called Great Depression to a greater or lesser extent, most European countries and the United States of America adopted tighter legal regulations for banking systems. These regulations were generally based on two principles: the introduction of deposit security schemes and the specialization of banking organizations. The introduction of deposit security schemes involved regulating the backup of commercial banks' sight liabilities, supervision by monetary authorities of compliance with the legal minimums of these reserves, and some central bank accountability for the deposits. The specialization of banking organizations was based on the removal of commercial banks from long-term operations, either under the form of loans or under the form of stable property of shares and corporate bonds.

All of this meant, of course, that the banking sector was subject to much stronger supervision and even intervention by the State. In addition, situations in which the public authorities had significant or even dominant positions due to bailouts of banks in trouble or those in which public authorities considered it appropriate to increase further the role in the sector of organizations previously controlled by the State.

It could be said that it was in this context that the transformation of issuing banks into central banks, that is to say, into banks of the banking system, without direct relations with non-financial agents, and with responsibility for the value of the monetary unit, both external (as reflected in the exchange rate) and internal (as reflected in the price level), and for the amount of money in circulation, as well as with supervisory functions of the banking and financial system.

## Development of social security systems

The world wars, especially the First World War, stimulated the development of social security systems due to the high number of casualties and situations of incapacity they provoked. In fact, it was considered the duty of the State, in practically all countries, to grant pensions to the relatives dependent on those dead in the military service and to those incapacitated by injuries also suffered in the military service. The requirements imposed by this obligation were all the more significant since they had to be based on a pay-as-you-go scheme and not on a capitalization scheme, as was usual in social security schemes that emerged before the First World War.

[On this topic, see Box 6.4 – Capitalization schemes and pay-as-you-go schemes in social security systems]

The social security systems thus developed were then extended to the population in general by pressure from trade unions and socialist movements.

One last significant impetus for the development and generalization of social security systems was the Great Depression, with the consequent rise in unemployment. Indeed, on the one hand it was generally considered that it was reasonable to provide support to the unemployed from a social point of view, on the other hand this support was seen as one of the most effective means of implementing a short-term countercyclical policy because it enabled partially to raise the depressed levels of consumption.

## Socialism

The first post-war period of the twentieth century saw the coming to power of socialist political forces in several countries: reformist socialists or social democrats took over the government of countries like Germany and Austria; revolutionary socialist or communists took over the government of countries like Hungary and Russia.

In the case of the reformist socialist or social democratic groups, the exercise of power respected, as a rule, the practices of formal democracy, which allowed their alternation in power throughout the period between the two world wars in several countries with non-socialist forces. In these circumstances, the transformations towards a socialist society have always been potentially in question. However, the tendency was to consolidate gradually, mainly as a result of the impact of the Great Depression. In fact, in addition to the more or less generalized development of social security systems, which can also be considered elements of traditional socialist programs, in some countries there were selective nationalization measures of large firms and sectors considered strategic for economic and social life. Moreover, as a consequence of the enlargement of the productive units controlled by the public sector, schemes of planning, at least partial planning, of the economic life developed, as a way of giving coherence to the performance of the various elements of this public sector.

In the case of the revolutionary or communist socialist groups, the exercise of power assumed, as a rule, the form of the so-called dictatorship of the proletariat, which allowed for continuity in power. In these circumstances, the transformations towards a socialist society have never been formally called into question. However, the only country in which a political and economic system of this kind succeeded in a sustained way was Russia, transformed, from 1922 onwards, into a confederation known as the Union of Soviet Socialist Republics, in short the Soviet Union, and two dependent countries, former parts of the Empire of China, Mongolia and Tuva (the latter would become part of the Soviet Union in 1944). And even in the Soviet Union, the implementation of an economic system based on the full nationalization of productive activities (with the exception of agricultural cooperatives and other artisanal activities) and the integral and imperative planning of economic life was only possible in the late 1920s (curiously, almost coinciding with the entry of the world economy in the Great Depression).

## C – Technological progress in the period of globalization backlash

Technological progress in the period of globalization backlash can be said to have been essentially based on exploiting the potential of electricity, the internal combustion engine, the chemical industry and wireless radio. In other words, it was basically the exploration of the potentialities opened by the innovations carried out at the end of the 19th century.

### Electricity

In the field of electricity, it should be noted in the period now under consideration:

• the consolidation of the diversity of forms of production (with competition between thermal power stations, using mainly coal as fuel, and hydroelectric power stations);

• the improvement of long-distance transport (allowing the replacement of the predominance of small generators of firm or local scope, by large generators of regional scope).

These transformations tended to consolidate the existence of a sector of the economy specifically dedicated to the production of electric energy, based on firms specialized in this business. The strategic importance that this sector progressively acquired in economic life and the market characteristics of oligopoly (especially in the production) or even natural monopoly (especially in the transport and distribution networks) also often progressively brought the expected intervention of the public powers, both in the role of regulators, or, more rarely, in the role of players, through the constitution of public firms for the sector.

Concerning the applications of electricity, particularly with an impact on daily life, it is important to highlight:

• the consolidation of the home appliance industry;

• the dynamism of the film industry.

### The internal combustion engine

In the field of internal combustion engine applications, it should be noted in the period now under consideration:

• the development of road transport by car, whether of goods or passengers, collective or individual, in competition with long-distance rail transport;

• the development of air transport, whether of goods or passengers;

• and the spread of the use of the motor vehicle as a device in the context of agricultural work.

The automobile and aircraft production sectors have tended to become sectors with oligopoly markets with companies with typical characteristics of the large modern firm, as presented in the previous chapter. Their potential military importance and the weight they gradually acquired in economic life as a whole also led to some intervention by the State, which rarely took the form of regulation of the sector or the creation of public firms; however, the presence of the State as a significant buyer and possibly conditioner of the activity for strategic reasons, especially in military applications, led to the diversification of production and use of economies of scope.

### The chemical industry

In the field of the chemical industry, we must highlight in the period now under consideration:

• the development of artificial textile fibres, which gradually acquired a significant market share in competition with traditional animal and plant fibres;

• the development of antibiotics, which gradually became the main tool of medicine in fighting infectious diseases caused by bacteria;

• the development of pesticides, which gradually came to play an important role in increasing agricultural production.

Considerations regarding the markets and state intervention in the motor vehicle and aircraft manufacturing sectors could be repeated regarding the chemical industry.

### Wireless radio

It is also important to emphasize the development in the period between the two world wars of a first media based on wireless radio, a means of communication based on the transmission of sound signals.

The development of radio as a means of social communication has raised important and new issues on the role it tended to play as an information, entertainment and cultural tool in general. For technological reasons the sector acquired the characteristics of an oligopoly market. However, the fact that the spectrum of electromagnetic waves is a collective good (with the characteristics explained in box 1.4) obliged the state to regulate its use. Moreover, the perception of the potential of this media as an instrument of propaganda led, as might be expected, to an even greater interest on the part of public authorities (and of major economic interests). There were situations of total control of the sector by the State, presence of state broadcasters in competition with private broadcasters and more or less intense regulation by the public authorities.

## D – The economic system in the period of globalization backlash

The economic system of the contemporary world economy in the period of globalization backlash continued to be predominantly a system of market capitalism, as it was before the First World War. This, however, failed to be true of all the national economies included in it, owing to the appearance of the first attempts to build an alternative of socialist centrally-planned economies in some of them; and even in those national economies which maintained the predominance of a capitalist market system, there was a general increase in the intervention of the public powers in economic life.

## State intervention

The typical minimal transformations of the economic system corresponded to what may be termed simple state interventionism, the paradigm of which is the policy of combating the Great Depression carried out under the administration of President Franklin Roosevelt in the United States of America and generally known by the term "New Deal'. These transformations involved the implementation of a short-term countercyclical policy through budgetary and monetary instruments, the regulation of the banking system and the development of a generalized system of social security.

The practice of simple state interventionism, especially short-term countercyclical policy, was crystallised in terms of economic theory with the work of the English economist John Keynes and his followers, giving rise to the school known as the Keynesian school, which decisively influenced the orientation and methodology of the economic policy in the second post-war of the twentieth century, as explained in the following chapter.

## Reformist socialism

The practice of the reformist or social-democratic socialist parties when they were in power, during a relatively stable period in the Scandinavian countries from the time of the Great Depression, was characterized by economic policies similar to those referred to as simple state interventionism, adding more structural elements: the nationalization of firms of sectors considered strategic or of very large size; the subsequent imperative planning of the public sector of the economy; indicative planning of the economy as a whole, with the adoption of tripartite negotiation schemes between government, employers' associations and unions and incentives for the performance of the private sector in accordance with the guidelines of government policy. In addition, there was concern about the redistribution of income, particularly through the implementation of particularly redistributive fiscal policies and the free provision of merit goods, such as education and health.

## Centrally planned economies – the case of the Soviet Union

The practice of the Communist parties in the countries where they seized power, countries of which the only relevant case in the period now under consideration is Russia, was initially characterized by some hesitation as to the course to follow, since Russia's economy was considered too backward in its process of industrialization to allow the immediate construction of a socialist economy.

Hence, the policy of the Communist Party of Russia, immediately after the seizure of power in the fall of 1917, was acknowledge by its leaders as a state capitalism under the control of workers' assemblies (soviets), in the expectation that developments in Europe's most highly developed countries would create the conditions for deeper transformations of Russia's own economy.

This policy was abandoned between the summer of 1918 and the summer of 1921 because the civil war against supporters of the restoration of the monarchy forced the state control of the economy that became known as war communism. This war communism was nothing more than the implementation of what, during World War I, was termed as war economy or war socialism. The main difference is that many members of the ruling party viewed this policy of necessity as a foreshadowing of what should be the practice even in a period of peace.

However, this was not the orientation followed after the victory in the civil war. In fact, the communist government returned to the policy of state capitalism under the control of the party, although it gave it the name of new economic policy. In 1922 it also undertook a major political reform, replacing the unitary state of Russia with a confederation of formally autonomous republics, though heavily controlled by the single Communist Party, called the Union of Soviet Socialist Republics.

It was not until the late 1920s, and in the face of the undoubted confirmation that political developments similar to those in Russia or the Soviet Union would not occur in the more highly developed countries, that there was a shift in Soviet economic policy toward integral nationalization of productive economic units (with the exception of cooperatives, only significant in the agricultural sector) and the imperative planning of the economy as a whole. It should be emphasized that the vision of socialism as an instrument for the development of a national economy implicit in this turn of economic policy was a conception totally at odds with what had always been sustained by the socialist movement: socialism as a transformation only possible in a highly developed capitalist society.

In any case, the performance of the Soviet economy during the period of the first plans (usually referred to as five-year plans as they were formulated for five-year periods) was quite good until World War II, clearly better than the performance of most capitalist market economies affected at that time by the Great Depression.

## Centrally planned economies – the case of Germany

The responses initially adopted in Germany to the challenge posed by the Great Depression were identical to those of most countries with capitalist market economies – classical policies of fiscal restraint and monetary tightening, which led to a worsening of depression – and then to those that undertook the simple state interventionism – implementation of a short-term countercyclical policy through budgetary and monetary instruments, regulation of the banking system and development of a generalized system of social security.

From 1933 on, with the coming to power of the National Socialist Party, Germany built a peculiar economic system, in which to the elements of the simple state interventionism a system of imperative and eventual full planning of the economic life was added, although without changing the formal property of the productive units, and therefore without a process of generalized redistribution of wealth and income. This evolution thus configured a system of centrally-planned capitalism, which turned into a typical war economy with the entry into World War II.

Also the performance of the German economy during the period of the plans (here commonly referred to as four-year plans as they were formulated for periods of four years) until World War II was quite good, clearly better than the performance of most capitalist market economies which were limited to simple state interventionism.

## The progress of the big modern firm and public firms

The trends of the economic system that have just been examined did not disturb, on the contrary, they reinforced the relevance of the big modern firm with the characteristics referred to in the previous chapter in the structure of the existing productive units. It is important, however, to distinguish clearly the situation of private firms in capitalist market economies, public firms in capitalist market economies, firms in centrally-planned socialist economies, and firms in centrally-planned capitalist economies.

In the case of private firms in capitalist market economies, there is little to add to what was said in the previous chapter. It should be noted that the organizational models of centrally and functionally departmentalized firms and multidivisional firms continued to progress among private firms in capitalist market economies; and that the successive short-term situations during the period under consideration led to adaptations in firm strategies. In particular:

• wars promoted the adoption of product diversification strategies, particularly in response to state demand for military purposes;

• the great depression implied an inversion of the strategies of geographical expansion, translated in particular in a reduction of the weight of foreign direct investment in the world product.

In the case of public firms in capitalist market economies, it was also customary to adopt the organizational model of centrally and functionally departmentalized firms or the organizational model of multidivisional firms, either because public firms resulted from the nationalization of private firms already organized according to these models, or because the characteristics of the activities of newly created public firms favoured, for reasons of size or market context (natural monopoly or oligopoly), the adoption of one of these models. It is clear that nationalization replaced the traditional core of owners by the state in the control of strategic management.

In the case of firms in centrally-planned socialist economies, particularly in the period now under consideration in the case of the Soviet Union, the tendency was for a reorganization of the productive units according to a sectorial and possibly regional logic, under the control of the central planning department. This reorganization generally confirmed or created internal structures that could be considered analogous to those of centrally and functionally departmentalized firms, but which were, of course, strategically subject to centralized planning control.

In the case of firms in centrally-planned capitalist economies, particularly in the case of Germany during the rule of the National Socialist Party, it can be said that the business landscape did not change radically in relation to what existed before. In fact, centralized planning of the economy reinforced the cartelization of the main sectors of the German economy, which was once generally supported by the State, favouring the consolidation of the organizational model of centralized and functionally departmentalized companies, but not stimulating, due to the State's own intervention and absence of the need to formulate diversified strategies for different markets, the expansion of the organizational model of multidivisional firms.

## E – Other aspects of the period of globalization backlash

Among the other aspects that characterized the time of globalization backlash are the attempts to deepen international cooperation in an organized way. In addition, reference should be made to the changes in the relative positions of the major economic powers in the world.

### International cooperation

The main instrument for deepening international cooperation in the period of globalization backlash was the League of Nations, established in 1919 following the peace conference that followed the First World War. The League of Nations, in addition to seeking the maintenance of international peace and security from the political point of view, sought to articulate the action of the main international organizations already in existence and to promote the constitution of others, among which the International Labour Organization and the International Health Organization.

Despite some successes in the resolution of international conflicts, in the performance of the aforementioned sectorial organizations and in the organization of economic conferences (one of them, the Genoa Conference of 1922, was decisive for the establishment of the international monetary gold-exchange standard system), the long-term balance of the League of Nations action is generally considered to be poor, because it was unable to elicit the cooperation necessary to prevent the onset and worsening of the Great Depression, and of sustaining during the 1930s the escalation of regional conflicts that would converge in World War II.

The League of Nations was abolished after World War II, replaced by the United Nations, to which reference is made in the following chapter.

### The great economic powers

The period of globalization backlash corresponded to the crucial era of the rise of the United States of America to a position of hegemony in the world economy, leaving behind any other country of considerable size, particularly Great Britain, both in terms of the size of the economy, and in terms of the degree of development. The rapid spread to the entire world economy of the great depression, which started in the United States of America, clearly indicates the central role of the American economy in the world context.

It should be noted, however, that the size and degree of development of Great Britain and even of France allowed them to play a still significant role in world economic life, as is pointed out by their roles in the international monetary system of the gold-exchange standard and in the monetary and commercial blocs formed following the Great Depression.

In parallel with this relative balance between the world's major economic powers, the financial centres of New York, London and Paris have also tended to rival each other as major international financial centres.

The period under consideration also witnessed the consolidation of the process of modern economic growth in two other countries of considerable size, Japan and Russia, later the Soviet Union, which appeared on the eve of World War II as potential great economic powers. The Second World War, however, severely affected the short-term situation of both countries due to the destruction suffered, which was aggravated in the case of Japan by its military defeat and subjection to occupation by the United States of America.

## Fundamental topics of Chapter 6

• The short-term impact of the two world wars and the great depression in the contemporary world economy.

• Structural impact of the two world wars and the great depression in the contemporary world economy.

• Institutional factors that led to the globalization backlash that occurred during the period between the two world wars (although without calling into question the existence of the contemporary world economy).

• Structural transformations of the period between the two world wars that have since become characteristic of the contemporary world economy.

## Questions for reflection

• To what extent is it possible, through innovations of an institutional nature, to counteract the impulse resulting from technological innovations in the sense of intensifying international economic relations?

• Is it reasonable to apply the notion of firm to state-owned economic organizations, particularly in the context of centrally-planned socialist economies?

[On this topic, see Box 6.5 – Public firms and firms in centrally-planned socialist economies]

• Why have centrally-planned (capitalist or socialist) systems often achieved better economic performance than market systems in the period now under consideration ?

## Box 6.1 – The First World War

World War I was fought between August 1914 and November 1918 by two coalitions:

• one comprising Serbia, Montenegro, Russia, France, Belgium and Great Britain, joined by China, Japan, Italy, Portugal, Romania, the United States of America, Greece, Bolivia, Brazil, Cuba, Ecuador, Guatemala, Haiti, Hedjaz, Honduras, Liberia, Nicaragua, Panama, Peru, Siam and Uruguay;

• another including Austria-Hungary and Germany, which was later joined by the Ottoman Empire, some other Muslim states and Bulgaria.

Technologically, World War I witnessed the application of the technology of the second industrial revolution, including the first versions of all new types of weapons employed during the twentieth century, with the exception of atomic weapons. In particular, chemical weapons (combat gases) and motorized weapons of various types (tanks, airplanes, although the still reduced radius of autonomy of the airplanes did not allow to carry out strategic bombings). Biological weapons were prepared, but were not used for fear of inability to control the spread of epidemics to user countries.

From the military point of view, the balance of the forces in hand provoked the conflict to drag on, without either side having won any decisive victory on the main fronts.

The decision of the war turned out to be based on the economic war, that is to say, on the attempts to deprive the enemy coalitions of vital supplies for the war effort. The blockade of supplies to Russia forced this country to surrender in early 1918; Germany's attempts to cut supplies to France and Britain by submarine warfare failed; and the naval blockade of France and Great Britain on supplies to Austria-Hungary and Germany eventually forced these countries to surrender in November 1918.

The peace treaties that followed the First World War changed the political map of Europe and the Near East with the disappearance of the Ottoman Empire, reduced to Turkey (Syria was subject to French administration and Iraq, Palestine and Egypt were subject to British administration) and of the Austria-Hungary Empire (whose core was divided into three states, Austria, Hungary and Czechoslovakia, and which lost territories to Italy, Romania and Serbia, the latter transformed into Yugoslavia) and the decrease of the territory of Germany (in favour of France, Belgium, Denmark and Poland) and Russia (from which Poland, Lithuania, Latvia, Estonia and Finland became separated). They also extinguished the colonial empire of Germany, divided between Great Britain, France, Belgium, Portugal and Japan.

## Box 6.2 – The Great Depression

The question of the causes of the Great Depression has, since its occurrence, been a subject of controversy among economists.

For some, the Great Depression was a consequence of poor economic policy choices, both in the context of medium-term developments following World War I and the first post-war period, and in the context of the short-run difficulties of the late 1920s. In the context of the medium-term evolution following the First World War and the first post-war period, the disruption caused by debt and war reparations and the generalization of protectionist practices, with the consequent reduction of international movements of goods and capital were to blame. In the context of the short-term difficulties of the late 1920s, the policies of fiscal and monetary neutrality initially adopted would have been particularly important. In both cases, international cooperation was insufficient. In other words, according to this perspective, it would have been possible to avoid the Great Depression by better scheduling debt payments and war reparations, less protectionism, stimuli to the economy through countercyclical economic policies and greater cooperation both in the immediate aftermath of the war, and following the onset of the crisis in the late 1920s.

For others, the Great Depression was a phenomenon almost inevitable due to the combination in the late 1920s and early 1930s of the exhaustion of the effects of two sets of innovations: the innovations that had been at the base of the second industrial revolution and the era of prosperity associated with the completion of the formation of the contemporary world economy and the beginnings of its existence (discussed in chapter 5); and the innovations that had been at the basis of the prosperity of the second half of the twenties of the twentieth century. In other words, according to this perspective, which underlines the importance of the cyclical incidence of economic fluctuations associated with the effect of innovations on the level of economic activity, it would have been impossible to avoid the crisis and the depression that followed. According to this perspective, similar situations have recurred throughout the evolution of the Euro-Atlantic world-economy after the beginning of the process of modern economic growth and throughout the evolution of the contemporary world economy (an example is the crisis of the mid-1970s century, studied in chapter 8).

However, even assuming, as the second perspective, that the Great Depression was inevitable and that there were similar situations, the particular gravity that this situation revealed, points to the occurrence of aggravating factors of the type underlined by the first perspective.

## Box 6.3 – The Second World War

The Second World War resulted from the articulation, which was never really completed, among several conflicts:

• a conflict between Japan and China, which began in 1937;

• a conflict between Germany on the one hand and France and Great Britain on the other, initiated in September 1939, owing to Germany's attack on Poland; Poland was occupied by Germany and the Soviet Union, which was not formally involved in the conflict; following this conflict, Germany occupied the majority of continental Europe in the following years, involving as allies Italy, Slovakia, Hungary, Romania, Bulgaria and Finland, and as enemies Denmark, Norway, Belgium, the Netherlands, Luxembourg, Albania, Greece and Yugoslavia;

• a conflict between Germany and the Soviet Union, which began in June 1941;

• a conflict between Japan on the one hand and Great Britain, the United States of America, France and the Netherlands on the other, initiated in December 1941.

The articulation of these conflicts resulted formally from the declaration of war by Germany to the United States of America in December 1941 and was never complete because the Soviet Union and Japan remained in peace until August 1945, when the Soviet Union declared war to Japan. Several other countries were formally involved in the conflicts, mainly countries of the American continent as allies of the United States of America.

Technologically speaking, World War II may be considered a more sophisticated version of World War I, mainly due to the greater range of aircraft autonomy, which allowed its use in strategic bombing, and to the first (and only one until today) use of atomic weapons.

From a military point of view, the first three partial conflicts mentioned above remained relatively balanced until their articulation, despite significant advances by Japan in Chinese territory and by Germany in Soviet territory. From the articulation of the various conflicts, the superiority of the coalition to which the United States belonged was clear due to the industrial power of this ally, although the resistance of Germany and Japan was tenacious, prolonging the conflict until May 1945 in the case of Germany and August 1945 in the case of Japan.

Following World War II Germany and Japan were subject to occupation by the winning powers and were imposed significant territorial losses. In the case of Germany, the division of the country into several areas of occupation eventually led to its political division in 1949 between the Federal Republic of Germany, consisting of the former American, British and French occupation zones, and the German Democratic Republic, consisting of former Soviet occupation zone.

## Box 6.4 – Capitalization and distribution schemes in social security systems

A social security system works according to a capitalization scheme when the benefits received by a beneficiary are a function of the contributions paid by the beneficiary to the system, guaranteeing the balance by the equality between the current discounted values of the expected values of contributions received and benefits received by all beneficiaries. In other words, a social security system operating under a capitalization scheme is simply a social insurance scheme whose purpose is to meet the needs of the beneficiaries.

A social security system operates on a pay-as-you-go basis when benefits received by a beneficiary are totally or partially separate from the contributions paid by the beneficiary to the scheme, ensuring a balance through the equality of contributions and benefits paid in each period. In other words, a social security system operating under a pay-as-you-go scheme is simply a scheme of redistributing income from active people (current contributors and potential beneficiaries of the system) to the non-active people (current system beneficiaries).

## Box 6.5 – Public firms and firms in socialist centrally-planned economies

It should be noted that the notion of public firm does not raise any conceptual difficulty in relation to the notion of private firm. In principle, a public firm, just as a private firm, produces a private good or a social good (in the sense given to these terms in box 1.4) for the purpose of short-term profit-making or, at least, financial equilibrium, in the context of a long-term strategy defined by the owner, which is the State. Insofar as it acts in the context of a capitalist market economy system, it can be said that a public firm differs from a private firm only by the owner and, in cases where it does not result from nationalization, by the initiative of its constitution. It should also be noted that public firms tended to focus on sectors such as infrastructures, transport, collective services, financial services and basic industries, considered basic to economic life, leaving to private firms the generality of the sectors of consumer goods and even of production goods.

It may be conceptually disputable to apply the notion of firm to a productive organization existing in a socialist centrally-planned economy. In fact, this productive organization is state property and is, as a rule, a state initiative; it acts in the context of a long-term strategy defined by the owner that is the State, and, in the short term, its purpose is not to obtain profits, not even financial equilibrium, but the satisfaction of needs, in principle defined collectively and transmitted to the organization by the orders contained in the imperative plan it must obey.

Problems of a bureaucratic nature and the achievement of the economic calculation in the economy as a whole and the management of the productive organizations in particular, as a result of the central planning mode of operation, are very complex. It is not possible to develop them here, but we must return briefly to the theme in the following chapters, to understand the reforms and the final collapse of the experiences of building socialist centrally-planned economies.

# 7 – The times of the division of the world economy and society (the third quarter of the twentieth century)

For about four decades after the end of World War II, the world economy and society lived in a situation where, despite the absence of world wars and widespread and deep depressions, such as the ones that had occurred between the 1910s and the 1940s, conditions of generalized free interaction between all the economies and national societies encompassed in the world economy and society were not re-established. Indeed, the spread of attempts to build a socialist alternative to the dominant capitalist society has led to a division of the world economy and society into two spaces, one of societies with capitalist market economies, the other of societies with socialist centrally-planned economies. Although these two groups of national economies maintained important economic relations with respect to essential goods (and were therefore not self-sufficient), they became separated in most of the institutional aspects. At the same time, efforts were made to intensify international economic relations in the context of each of the areas thus defined, particularly through the creation of international economic organizations, which had important practical results.

The institutional framework of this period of evolution of the world economy and society was also marked by the intensification of the intervention of public powers in economic life, even in those economies that remained as capitalist market economies, giving rise to what was called the mixed economic system. As a consequence of the institutional framework just synthesized, the period under consideration was, in a sense, a period of apogee of the big modern firm in the form of private firms in capitalist market economies and large state productive organizations in the socialist centrally-planned economies. At the same time, major technological innovations in the fields of electricity, motors and chemistry led to large increases in productivity and important technological innovations in the fields of computer science, atomic energy and biotechnology paved the way for novelties that were to flourish in the final decades of the twentieth century.

## A – The technological framework at the time of the division of the world economy and society

The technological innovations introduced during the period of division of the world economy ~~and society~~ may be classified into two large groups:

a) Incremental (but very important) innovations in the fields of electricity, engines and chemistry, which were the most dynamic sectors of the economy since the late nineteenth century.

b) Radical innovations in the fields of information technology, atomic energy and biotechnology.

It can be said that the incremental innovations in the fields of electricity, motors and chemistry were the sources of the major immediate increases in productivity, and that it was radical innovations in the fields of computer science, atomic energy and biotechnology that paved the way for transformations which would be decisive from the last decades of the twentieth century, as studied in the next chapter.

### From electricity to electronics

The use of electric circuits in which are inserted devices susceptible to an active control of the electric current and its intensity, such as vacuum tubes, transistors, diodes, etc., is called electronics.

The beginnings of electronics was linked to the development of radio or wireless telephony and the media using electromagnetic waves, especially in functions of amplification or stabilization of electrical signals. They date, therefore, strictly, from the first half of the twentieth century. It was, however, in the second half of the twentieth century that electronically based technologies spread to an increasing number of applications through the use of integrated circuits, either analogue, that is to say, involving a continuous range of voltages, or digital, that is to say, involving a discrete range of voltages. These transformations were also linked to a diversification of the materials used in electrical and electronic devices.

Among the uses of electronics, of course, information technology deserves a special reference.

### Information technology

It may be said that the beginnings of the practical use of information technology date back to the time of the Second World War, for cryptographic and ballistic computing purposes. Throughout the third quarter of the twentieth century, its civil use was generalized for bureaucratic purposes and economic calculation, and its systematic use began in articulation with what is generically called information and communication technologies, which would reach its development in the last decades of the century.

### From internal combustion engines to reaction and turbine engines

It was throughout the first half of the twentieth century that efforts were made to design and construct engines using the petroleum-derived fuels used since the 19th century in internal combustion engines, but by applying them not in the movement of pistons, but of rotors.

These new reaction and turbine engines proved to be one of the most important incremental innovations since the Second World War and during the third quarter of the twentieth century. First of all, in the airplane, the reaction or jet, that had already been used in World War II for military purposes and that gradually replaced the propeller-plane in the majority of civil uses in the following decades, and then in industrial motors as well. Only land-based motor vehicles have retained the use of the traditional internal combustion engine because the new types of engines are only suitable, for efficiency reasons, for very large power applications.

The most sophisticated version of this new type of propulsion was the rocket, in practice a reaction engine that carries, in addition to fuel, its own comburent, and therefore can operate independently of the Earth's atmosphere.

The most spectacular application of the rocket during the period now under consideration was undoubtedly the beginning of the exploration and use of space outside the Earth's atmosphere through artificial Earth satellites and interplanetary exploration vehicles.

## The conquest of space

It is possible to take as decisive moments of the beginning of the process of conquest of the space the placing in orbit of the first artificial satellite by the Soviet Union in 1957; sending the first unmanned vehicle to the Moon by the Soviet Union in 1959; the first manned orbital flight (by Yuri Gagarin) promoted by the Soviet Union in 1961; the first manned expedition to the Moon (commanded by Neil Amstrong) promoted by the United States of America in 1969; and the sending of the first unmanned vehicle to the Moon with subsequent return to Earth by the Soviet Union in 1970.

In addition to the scientific and political importance of this process, it gradually gained both military and economic importance, especially in the fields of meteorology, communications and orientation on the earth's surface.

## The question of energy

The increase in the relative importance of liquid and gaseous hydrocarbons and the reduction of the relative importance of coal as energy sources, which have been observed since the end of the 19th century, mainly due to the progress of internal combustion engines and electric motors to the detriment of the steam engine, were accentuated in the third quarter of the twentieth century by the tendency for the substitution of coal for petroleum products in thermal power plants. At the same time, the production of electrical energy through the so-called atomic energy emerged as a possible rival of thermal power plants.

## Atomic energy

The use of atomic energy for military purposes was another innovation of the Second World War (an innovation that later spread on a large scale in terms of production and storage of weapons, but was not repeated in terms of practical use). The second post-war period saw the use of atomic energy for peaceful purposes, that is to say, the production of electrical energy for economic purposes generally as a result of radioactive processes, in particular processes of controlled nuclear fission.

However, the use of atomic energy has, from its very beginnings, given rise to the problem of waste disposal, which remains potentially dangerous for extremely long periods (thousands of years).

### Biotechnology

Biotechnology is the use in productive processes, with economic ends, of organic chemical processes only achievable as a result of the metabolism of living beings. In this sense, the economic use of biotechnology is, strictly speaking, something that has become usual for several millennia, particularly in food production using enzymes, examples of which are bread, cheese, wine and beer.

During the second quarter of the 20th century there was a significant new use of biotechnology, especially of medical importance, in the production of penicillin.

During the third quarter of the twentieth century, the search for new economic applications of biotechnological processes became one of the leading fields of scientific research and technological development.

## B – The institutional framework at the time of the division of the world economy and society

What should be the international economic order of the second post-war of the twentieth century, according to what may be termed the American project, was prepared by a series of international conferences, notably the Bretton Woods Conference held in 1944 and the Havana Conference held in 1947. The first resulted in the design of an international monetary system of fixed exchange rates and external convertibility, implying an international financial system of limited free movement of capital, and a system to support the reconstruction of the economies devastated by war and the development of less developed economies. The second resulted in the design of an international trading system based on the principles of non-discrimination and potential free trade.

This international economic order, however, ended up being put into practice only by the countries with capitalist market economies, especially the more developed ones. The Soviet Union and a significant number of countries, including the so-called Eastern European popular democracies, Yugoslavia and the People's Republic of China, embarked on the attempt to construct a socialist centrally-planned alternative to the capitalist market economy (although Yugoslavia since the late 1940s and the People's Republic of China since the 1960s have moved away from the process led by the Soviet Union).

The situation thus created in the immediate aftermath of World War II was altered in the following decades by three processes. Between the late 1940s and early 1960s, the decolonization process greatly altered the role that the previously colonized regions played in the dominant international economic order. Between the end of the 1960s and the mid-1970s, the international monetary system of fixed exchange rates and external convertibility collapsed, generating a severe short-term crisis of capitalist market economies and opening the way to structural transformations that created an international monetary system of floating exchanges rates and effectively convertible foreign exchange and an international financial system with virtually total freedom of capital movement. Finally, in the late 1980s and early 1990s, the experiences of socialist organization and central planning of national economies collapsed. These three processes created, in successive stages, the international economic order that ended up framing the second globalization.

## The international monetary system of the second post-war of the twentieth century and the International Monetary Fund

The international monetary system devised at the Bretton Woods Conference sought to re-establish the characteristics of fixed exchange rates and full external convertibility of the international monetary system of the pre-World War I, the gold standard, but with more flexible elements. However, it was not based on the automatic mechanism of internal convertibility but rather on a mechanism of systematic intervention of central banks in foreign exchange markets. On the other hand, and considering the dominant social priorities at the time, it was not considered reasonable to renounce the realization of a short-term countercyclical economic policy, for which the possibility of exceptions to the rules was foreseen: in the case of external convertibility through possible controls of the international movements of capital; in the case of fixed exchange rates through occasional changes in parity in the case of structural imbalances of the balance of payments. Finally, a mechanism to support compliance with the rules by the national monetary authorities was set up: an International Monetary Fund (IMF), which is fed by contributions from member countries and intended to provide loans to overcome short-term imbalances of the balance of payments, impossible to sustain with the reserves of international means of payment available in a given country.

Despite the effective establishment of the IMF as early as 1945, the international monetary system devised at the Bretton Woods Conference had some difficulty in starting its full operation due to the scarcity of international means of payment. In fact, the existing gold was scarce for the needs of international trade and was very concentrated in the American reserves; and of the three currencies which had served as anchors to the system of the gold-exchange standard and to the monetary blocs between the two world wars, the French franc had lost any role as an international currency, and it was quickly understood that the same tended to happen with the British pound sterling, only used among the countries of the former sterling block; there remained the US dollar, which the US Federal Reserve System committed to convert into gold for the central banks participating in the IMF, thereby establishing a final linkage of the international monetary system to gold. However, the amounts of dollars in international circulation were also scarce, even as the United States of America had its balance of payments in surplus, mainly due to the demand for American goods by other economies. The injection of dollars into the international circulation through US reconstruction and development aid turned out to be decisive for the system to gradually begin operating until the late 1950s.

## Reconstruction and development: the World Bank and American aid

The reconstruction of war-torn economies and the development of less developed economies were assumed as priorities of the post-war international economic order. To achieve these objectives, the International Bank for Reconstruction and Development (IBRD), an investment bank, funded by contributions from member countries and the issuance of loans in international financial markets, was created to provide long-term loans for reconstruction or the creation of strategic productive equipment for the reconstruction or development of those economies.

The role of the International Bank for Reconstruction and Development in rebuilding war-torn economies was rather limited, on the one hand because the countries that sought to build socialist centrally-planned economies remained out of the organization, on the other hand because the United States of America took an active role in direct aid to the countries of Western Europe through the so-called Marshall Plan (the name of the Secretary of American State that launched the Economic Aid Program to Europe) and Japan through the so-called Dodge Plan (the name of the American expert who led the design of plans for the economic reconstruction of Germany and Japan in the second post-war).

On the other hand, the International Bank for Reconstruction and Development has rapidly assumed a crucial role in the financing of development investment projects in most countries with capitalist market economies, and has subsequently expanded its scope by creating the International Finance Corporation in 1956, the International Development Association in 1960, the International Centre for Settlement of Investment Disputes in 1966, and the Multilateral Investment Guarantee Agency in 1988, giving rise to the so-called World Bank Group.

## Free-trade: the design of the International Trade Organization and the General Agreement on Tariffs and Trade

The international trading system based on the principles of non-discrimination and potential free-trade implied two commitments on the part of the countries involved: to generalize most-favoured-nation treatment in their customs regime to all partners in the system and to participate in negatiation rounds aimed at reducing barriers to trade. However, exceptions to the most-favoured-nation treatment have also been admitted in this area: negative exceptions in case of a serious risk for economic activities considered essential for a country, or measures to promote the economic development of relatively less developed countries (namely through support to nascent industries); positive exceptions, allowing the existence of preferential customs areas, especially between customs territories subject to common sovereignty (for example metropolises and colonial empires), free trade areas, that is to say, spaces for the abolition of tariffs between different customs territories, and customs unions, that is to say, mergers of customs territories, with the abolition of tariffs and adoption of a common external tariff.

To set up this international trade system, it was envisaged that an International Trade Organization would be established, with arbitration capacity in international trade disputes, but the project was not carried on, curiously due to the decision not to participate of the United States of America, which had been the process drivers. Instead, a General Agreement on Tariffs and Trade (GATT) was signed and a Secretariat was set up to register countries' access to the Agreement and to organize negotiation rounds to reduce obstacles to trade.

### The Marshall Plan and the beginnings of the European integration process

As pointed out above, the role of the International Bank for Reconstruction and Development in rebuilding the economies devastated by the Second World War turned out to be relatively small, because the United States of America directly assumed from the late 1940s the role of major financiers of this effort, both in Western Europe and Japan.

The assumption of this role by the United States of America can be understood from the economic point of view as a way of stimulating the American economy itself, through the orders that the beneficiary countries tended to make to American firms (not by any obligation but simply because in the United States alone there was adequate productive capacity for many of the indispensable goods), and from the political point of view as a way of forcing the Soviet Union and its allies to choose between obtaining American aid and isolation, while at the same time reinforcing the economic and political capacity of countries accepting American aid.

The result in Europe was a very clear and rigid division between the spheres of American and Soviet influence. Austria, Belgium, Denmark, France, Greece, Great Britain, Ireland, Iceland, Italy, Luxembourg, Norway, Portugal, Sweden, Switzerland, Turkey and the American, British and French occupation zones in Germany (which in 1949 would constitute the Federal Republic of Germany) accepted the American aid and created the Organization for European Economic Cooperation (OEEC) to distribute and use it. Albania, Bulgaria, Czechoslovakia, Hungary, Poland, Romania, the Soviet Union and the area of Soviet occupation in Germany (which in 1949 would constitute the German Democratic Republic) rejected American aid, went on building socialist centrally-planned economies and formed an economic cooperation organization called the Council of Mutual Economic Assistance (or Comecon, acronym of economic community). Finland rejected US aid under pressure from the Soviet Union, but remained as a capitalist market economy. Yugoslavia rejected US aid and maintained the effort to build a centrally-planned socialist economy but did not integrate into Comecon because of political divergence with the Soviet Union. Spain was the only European country to which US aid was not offered because its political regime was considered to be analogous to those that had been defeated in World War II. This situation would change during the 1950s, with Spain becoming a member of the OEEC at the end of the decade.

It was within the OEEC that decisive steps were taken to start the process of European integration. In 1950 a European Payments Union (EPU) was established to facilitate trade and financial transactions between member states through a clearing house mechanism in the context of the lack of international payment means mentioned above. There followed proposals for a customs union or a free trade zone between member states, but it was not possible to reach an agreement. The six highly developed countries which wanted a deeper economic union – the Federal Republic of Germany, Belgium, France, Italy, Luxembourg and the Netherlands – constituted in 1952 the European Coal and Steel Community (ECSC), a common market for coal and steel products and in 1958 the European Atomic Energy Community (Euratom), an organization to promote the peaceful use of atomic energy, and the European Economic Community (EEC), a customs union, which was to become an economic union, with full freedom of movement of goods, capital and persons, and provision of services and establishment of economic units. In response, the six other highly developed OEEC countries – Austria, Denmark, Great Britain, Norway, Sweden and Switzerland – formed the European Free Trade Association (EFTA), a free trade zone, which Portugal joined from the outset. The remaining medium-developed OEEC countries – Spain, Greece, Ireland, Iceland and Turkey – remained for some time outside the rival economic blocs formed by the European Communities and the EFTA.

[On a technical point, see Box 7.1 – Clearing house]

This division of the OEEC did not prevent monetary cooperation between its members from the end of the 1950s onwards in the framework of the European Monetary Agreement (EPA), which replaced the EPU, since the mechanism of the clearing house for international payments between the member states of the OEEC was considered superfluous, but they wished to maintain the possibility of support to countries with difficulties in their balance of payments beyond what could be granted by the IMF. Nor did it call into question the continuity of economic cooperation in general, but it was placed in a new context by the replacement in 1961 of OEEC by the Organization for Economic Co-operation and Development (OECD), which included the United States of America, and Canada and then extended to the majority of highly developed capitalist market economies.

## The international economic order of the post-World War II: the socialist centrally-planned economies

A considerable number of countries remained outside the international economic order based on the IMF, the World Bank and the GATT, and sought instead to develop a socialist centrally-planned alternative to the dominant market capitalist economy. This was the case of the Soviet Union, of the so-called Eastern European and other European popular democracies, (which can be described as a sphere of Soviet influence), and the People's Republic of China.

In the case of the Soviet Union, the socialist centrally-planned economy was, in principle, a continuation of the experience of almost integral nationalization and imperative planning of the economy, which began in the period between the two world wars and referred to in the previous chapter.

In the case of the popular democracies of Eastern Europe and the other countries of the Soviet sphere of influence there was at first an attempt to copy the Soviet model while at the same time trying to organize the cooperation between these experiences through the Comecon, in which to initial members, Mongolia and, from the 1960s, Cuba were added. Exception to this cooperative effort, though not immediately to the model of socialist centrally-planned economy, was Yugoslavia, due to political divergence with the Soviet Union.

In the case of the People's Republic of China there was also an attempt to replicate the planning model of the economy of the Soviet Union, although the country did not join the Comecon.

Divisions in the international communist movement and the very dynamics of the processes eventually led to some divergences in the practice of these experiences of building socialist economies from the late 1950s onwards. Yugoslavia adopted what appeared to be a socialist market economy, based on state ownership of economic units but self-management by their workers, and greater openness to interaction with capitalist market economies in terms of movements of goods, capital and people. The Soviet Union and in its wake most of the countries of the Comecon implemented economic reforms aimed at changes in the processes of economic calculation and planning to cope with the greater complexity of economies that had successfully completed the consolidation of their industrialization process and intended to meet the increasing diverse needs of consumers. The People's Republic of China successfully experimented with decentralization schemes for economic planning, starting from the late 1970s on what was termed the "one country, two systems" policy, that is to say, maintaining a socialist system of central planning in the generality of the country and the opening to a capitalist market system of special economic zones.

## The international economic order of the post-World War II: other international organizations

The division of the world economy and society between countries with capitalist market economies and countries with centrally-planned socialist economies did not call into question the existence of a profound interdependence between the two areas, especially in the commercial sphere and peacekeeping efforts and cooperation, which were largely framed by the United Nations (UN) and the specialized organizations associated with it, many of which for predominantly economic purposes.

[On this topic, see Box 7.2 – UN]

[On this topic, see Box 7.3 – United Nations specialized agencies]

## Decolonization and the Third World

The third quarter of the twentieth century witnessed the disappearance of most of the colonial empires which, above all, several European countries had established for several centuries, with especial importance at the end of the nineteenth century, as pointed out in Chapter 5.

The process began in the 1940s with the end of British domination in India and South Africa, extending throughout the 1950s to most of Asia and Mediterranean Africa and in the 1960s to most of Africa, concluding essentially with the independence of Portugal's African possessions in the mid-1970s.

As a result of the process of decolonization, the international community received a few dozen new independent countries, which sought, generally with little success, to move away from the division of world society and economy between countries with capitalist market economies and countries with socialist centrally-planned economies, creating what was termed the Non-Aligned Movement, which were often referred to collectively as the Third World.

## Problems of the international monetary system

In the late 1960s, the international monetary system created in the second post-war period began to confront problems that were at odds with those that had hampered its start. In fact, the reversal of the trade balance of the US economy, US investment in other economies, and US government military expenditures abroad have created a tendency for some excess dollars in international circulation, pushing for depreciation of the system's anchor currency.

These problems reached their critical point in 1971, when the United States of America suspended the convertibility of the dollar into gold (August) and was forced to accept a devaluation of the dollar against most other currencies (December). Further devaluation of the dollar in February 1973 was quickly followed by the collapse of the fixed exchange system in March of the same year, forcing a profound change in the international monetary system.

## The crisis of the 1970s

One of the immediate consequences of the collapse of the international monetary system was the reaction of the Organization of Petroleum Exporting Countries (OPEC), which attempted to recover from the losses resulting from the depreciation of the dollar, the currency in which crude oil was (and still is) priced in the international markets, by a typical cartel action, restricting the production to obtain increases of the price. By the end of 1973 the crude oil price had nearly quadrupled compared to the beginning of the year. This was what became known as the first oil shock.

[On this topic, see Box 7.4 – OPEC]

Given the role that crude oil had acquired as a source of energy, the first oil shock unleashed a serious crisis in the world economy, with the emergence of a phenomenon then unforeseen by economic theory, stagflation, that is to say, a combination of economic stagnation (due to the scarcity of the main energy source) and sharp rise in prices (due to the rise in the price of the main energy source).

The second half of the 1970s witnessed a gradual recovery of the world economic situation, which was interrupted by a second oil shock in 1979, followed by a new period of crisis in the early 1980s. From the middle of the 1980s, a new recovery occurred, which is generally identified with the beginning of the second globalization process.

## The new international monetary system

In the meantime, a new international monetary system had been established, relinquishing the aim of maintaining fixed exchange rates between the currencies of the various countries. The principle of an international money system with floating exchange rates was formalized in 1976 in the Kingston Agreements.

The International Monetary Fund, in the context of which this new international monetary system was structured, lost an important rationale in its context, since the countries have acquired an additional instrument to deal with situations of external payment difficulties, namely currency devaluation. However, its existence and its traditional function of technical and credit support to countries with imbalances in their balance of payments remained.

The abandonment of the objective of fixed exchange rates allowed a more perfect realization of the other objective initially aimed at in the immediate second post-war international monetary system, namely full foreign convertibility, especially since it allowed to put an end to the restrictions that still remained in many countries to freedom of capital movements. Assuming the risk of exchange rate fluctuations, international capital movements intensified as a result of this liberalization, also giving a significant boost to the process of the second globalization.

## The collapse of the socialist centrally-planned economies

The last transformation that created the conditions for the second globalization process was the collapse of the socialist centrally-planned economies, which occurred in the late 1980s.

This collapse was preceded in the Soviet Union and in the countries of its sphere of influence during the 1980s by a radical reform of the functioning of the socialist centrally-planned economies that attempted to reproduce many mechanisms of market economies, but preserving the nationalization of productive units, a process that failed.

The collapse of the experiences of constructing socialist centrally-planned economies alternative to capitalist market economies involved three main processes:

a) The collapse of the Soviet sphere of influence in Eastern Europe in the late 1980s with the disappearance of communist party dictatorships in most previous popular democracies. In the following years, two federally-structured Eastern European countries, Czechoslovakia and Yugoslavia, were divided into their constituent republics, in the first case quickly and peacefully, in the second after a long period of conflict between the new states (which is not yet fully stabilized in the second decade of the twenty-first century because of the lack of mutual recognition of *de facto* states).

b) The collapse of the Soviet Union itself, with the political disintegration of the confederation into the republics that constituted it in 1991 and the disappearance of communist party dictatorships in these republics.

c) The shift from the "one country, two systems" policy of the People's Republic of China towards a clearly dominant capitalist market system, but without the disappearance of either a major state sector in the economy or the communist party dictatorship in the political sphere.

The remaining national experiments in the construction of centrally-planned socialist economies have all experienced an evolution similar to the case of popular democracies in Eastern Europe or the case of China.

The generality and simultaneity of the collapse of the processes of construction of socialist centrally-planned economies through communist party dictatorships points to the action of factors coming from the economy and society of the world as a whole that cannot be analysed here in depth.

## C – Changes in the economic system at the time of the division of the world economy and society

As suggested in the introduction to the chapter, the period of division of the world economy and society was in a sense the period of the apogee of the big modern firm in the form of private firms in capitalist market economies and large state productive organizations in socialist centrally-planned economies.

On the other hand, the intervention of public powers in economic life intensified, even in those economies that have maintained a predominantly market mode of regulation and a predominantly capitalist mode of organization, giving rise to what has been termed the mixed economic system.

### The apogee of the big modern private firm in capitalist market economies

The diffusion of the organizational models of the big modern firm, as they prevailed already in the United States of America before the Second World War, to most capitalist market economies, first of all naturally to the more developed capitalist market economies of Western Europe and Japan, was the result of several factors: it was partly the result of US investment abroad and the consequent implementation of the organizational models of its multinationals in their affiliates abroad; in part it was the result of the copy of the models of organization of the big modern firm as they existed in the United States of America by the big firms of other countries; however, it was mainly a result of the characteristics of the market and institutions in Europe and Japan having converged to the characteristics of the American economy. Indeed, rapid and sustained growth in per capita income, a more even distribution of income and the process of European integration tended to create mass markets with greater size and dynamism; meanwhile, the widespread adoption of legal mechanisms to defend competition, similar to those already existing in the United States, favoured the adoption by large firms of other countries of strategic responses similar to those already practiced in the United States of America. In any case, firms with multiple productive units, managed at all levels by a hierarchy of professional managers and with centralized, functionally departmentalized or multidivisional internal organization, have become the typical large firms in all developed countries with market capitalist economies and afterwards gradually in all countries with capitalist market economies.

However, the increase in the size and complexity of the activities of some firms led to some organizational innovation in the structure of its management, with the appearance of what is called the matrix organizational structure. The matrix organizational structure is a structure, as a rule multidivisional, in which there is an institutionalized systematic organizational relationship with different bases. A possible example is the existence of divisions by product and by region, which must coordinate their strategy according to these different operative dimensions of the firm.

### The productive organizations in the socialist centrally-planned economies

The productive organizations in the socialist centrally-planned economies largely maintained the characteristics already existing in the period considered in the previous chapter. Most of these productive units were state-owned units strategically controlled by the state and formally oriented in the short term to satisfy needs defined by the state, subject to the fulfilment of production objectives and transactions to a large extent defined by the central planning department; these productive units were, as a rule, organized internally in a centralized and functionally departmentalized form. As a result of all the constraints created by the centralized planning of the economy, they had little room for manoeuver for internal management, especially for strategic management. Functional and operational management was performed by a hierarchy of professional managers and technical managers.

In addition to the overwhelming majority of these units (usually called the red sector), there was a small sector of cooperatives and small individual production units functioning legally, especially in agriculture, according to market mechanism, strongly conditioned by overall planning and the performance of state-owned firms (usually referred to as the white sector); and also a reduced sector of small private production units operating in the margin or outside the law, especially in the service sector, also according to market mechanism, strongly influenced by the overall plan and the performance of state-owned enterprises (usually called the black sector).

This general picture tended to undergo variations, sometimes even profound changes, depending on local and historical circumstances.

Local circumstances have mainly resulted from the virtually complete abandonment of certain important sectors of the economy by state firms in some countries (the most conspicuous case being agriculture in Poland) and the experiences of decentralization of planning in some countries (the most conspicuous case was China from the end of the 1950s) and the formal combination of socialist organization (that is to say, initiative and strategic control of productive units by the state) with market functioning (that is to say, greater freedom to set production objectives and to implement transactions) and the so-called self-management (that is to say, greater participation of the workers of each productive unit in the decision-making regarding their management) also carried out in some countries (the most conspicuous case was Yugoslavia also from the end of the 1950s).

Historical circumstances have resulted mainly from attempts to use market mechanisms as an auxiliary tool for the functioning of the red sector itself in the Soviet Union and in the economies which most faithfully copied its model at certain points in its evolution. This happened for the first time in the late 1950s, with a clear relapse in the 1960s, with renewed confidence in the efficiency of centralized planning using key technical (matrix analysis of input-output relations) and technological (computing) innovations. Market mechanisms resumed their relevance in the 1980s, to some extent preluding the ultimate collapse of the socialist centrally-planned system.

### Involvement of public authorities in economic life and the mixed economic system

The intervention of public powers in economic life in the economies that maintained a predominantly market capitalist system took four forms: regulation of economic activity; attempt to influence this activity through structural and short-term economic policies; presence in this activity through organizations of public initiative; and reinforcing of public social security systems.

With regard to the regulation of economic activity, it is important to distinguish between international aspects and national aspects.

The most important international aspect of regulating economic activity was the controls and limitations placed on the international circulation of capital. Although foreign investment has grown significantly over the period now under consideration, especially by US firms in other highly developed countries, and the process of European economic integration, along the lines of European Communities, there was no widespread abolition of controls and restrictions on the international movement of capital, especially as a result of the commitment to maintain fixed exchange rates, which was the basis of the international monetary system until the 1970s.

The most important national aspects of regulating economic activity included, as a general rule, the creation of supervisory structures for sectors considered basic to economic life or fundamental for political reasons; the creation of structures to defend competition; and the frequent production of orders or direct restrictions related to the operation of economic agents.

With regard to attempts to influence economic activity through economic policy, it is important to distinguish between structural and cyclical aspects.

Structural economic policy generally took as its main objectives economic growth in highly developed economies and economic development in medium or poorly developed economies. In the absence of a generally accepted theory on the instruments to be used to achieve these objectives, the practice of structural economic policy tended to take a pragmatic approach based on public investment in infrastructure and human capital; in stimulating the imports of technology considered important for growth or for the development process; and the creation of public firms or support for the formation of private firms for the supply of goods and services also considered crucial for growth or for the development process.

Short-term economic policy generally took as its main objective full employment and price stability. The dominant economic theory pointed to the fiscal instrument (stimulating economic activity and employment by increasing public expenditure, reducing tax revenues, or a combination of the two measures; fighting inflation through equilibrium or the positive balance of the public accounts) and the monetary instrument (stimulating economic activity and employment through the increase of money supply, the reduction of the interest rate, or a combination of the two measures; combating inflation by curbing money supply, increasing the interest rate, or a combination of the two measures). As full employment and price stability in these circumstances appeared to be potentially contradictory objectives, the question arose of the possibility of achieving them both through an appropriate combination of measures and the possible need to prioritise those objectives. It can be said that until the crisis triggered by the first oil shock there was always reasonable confidence that an adequate combination of measures (with the stimulus to economic activity and employment mainly entrusted to the budgetary instrument and the fight against inflation entrusted mainly to the monetary instrument) would allow for a combination of low unemployment rate and inflation rate, with priority being given to employment when necessary, with a restriction on tolerable inflation. After this crisis and the subsequent onset of the phenomenon of stagflation, there was a clear loss of confidence in the effectiveness of the short-term economic policy, which would lead to its complete reformulation, as explained in the following chapter.

The presence of public authorities in economic activity through public-sector organizations has resulted either from nationalizations of private firms analogous to those mentioned in the previous chapter or from processes for the creation of public firms, particularly in the context of structural economic policy, as explained behind.

The reinforcement of public social security systems continued and spread the trend that had been established in the period of globalization backlash, as explained in the previous chapter.

## D – Other aspects of the era of division of the contemporary world economy

### Great powers

As was clearly stated throughout this chapter, the period of division of the world economy was characterized by the hegemonic position of the United States of America between the countries with capitalist market economies and the Soviet Union among the countries with socialist centrally-planned economies. China disputed the Soviet position since the early 1960s.

American hegemony among countries with capitalist market economies also implied a clear hegemony of New York's financial centre among international financial centres.

### Economic situation

It can be said that the economic situation has gone through two clearly distinct phases during the period under consideration.

Until the crisis triggered by the first oil shock, the anti-cyclical short-term economic policy generally succeeded in stabilizing the level of economic activity, which showed a clear upward trend, possibly disturbed by the braking of the rhythms of growth or even small recessions, but never interrupted by significant crises, much less depressions.

From the mid-1970s onwards, the anti-cyclical short-term economic policy proved unable of solving stagflation situations promptly, with a return to more or less periodic crises, with much synchronization between the majority of the national economies, witnessing the growing integration of the world economy.

## Fundamental topics of Chapter 7

• Technological and institutional innovations of the second half of the twentieth century and their relationship.

• International economic order of the second post-war of the twentieth century: initial projects and reality achieved.

• Economic system and productive organizations in the era of the division of world economy and society.

## Questions for reflection

• To what extent was the division of the world economy and society into a group of countries with capitalist market economies, a set of countries with socialist centrally-planned economies and a set of newly decolonized countries a stimulus factor for growth and development?

• To what extent is a centrally-planned system viable in a highly developed economy?

[On this topic, see Box 7.5 – Causes of the collapse of the centrally-planned economies]

## Box 7.1 – Clearing house

A clearing house is a mechanism whereby payments due between a set of economic units for a certain period of time are not carried out immediately and bilaterally but are recorded centrally and only the multilateral net balance is paid at the end of the period.

The scheme was introduced for the first time by the banks of the London financial centre in the eighteenth century for the processing of payment orders (mainly checks) drawn by customers on each bank and delivered for deposit in other banks. It was then generalized to multiple situations in which it was felt convenient by the participants to save on the use of means of payment and to simplify bureaucratic procedures.

In the case of the European Payments Union (EPU), quarterly multilateral net balances were paid using part of the Marshall aid, with the aim of introducing US dollars, which were at that time very scarce in the European countries, into the central banks of the OEEC countries.

## Box 7.2 – UN

The United Nations (UN) was formed in 1945 with the objective of guaranteeing peace and promoting cooperation at world level. Its organs are today:

(a) The General Assembly, which consists of 193 member states and where decisions are taken by a two-thirds majority on the admission of members and budgetary matters and recommendations are put forward by simple majority on most of the issues relevant to the organization.

(b) The Security Council, consisting of five permanent members (United States of America, China, France, Great Britain and Russia, who have the right of veto) and 10 members elected by the General Assembly for two-year terms and where mandatory resolutions on international peace and security issues are taken.

(c) The Economic and Social Council, consisting of 54 members elected for three-year terms and whose mission is to promote economic and social cooperation in the world.

(d) The International Court of Justice, consisting of 15 judges appointed for nine-year mandates and where decisions are taken on the interpretation and application of international law.

(e) The Secretariat, headed by a Secretary General, who is responsible for the implementation of the resolutions adopted by the various organs of the organization.

(Initially, there was also the now-defunct Council of Mandates, whose function was to supervise situations in which a country was tasked by the United Nations to provisionally administer a non-autonomous territory.)

The United Nations is linked to specialized agencies (see Box 7.3) and attempted to establish regional economic cooperation commissions, which have since been extinguished or have relatively little activity.

## Box 7.3 – United Nations specialized agencies

The United Nations is linked with the following specialized agencies (some of which are international organizations established before or independently of the United Nations and mentioned in previous chapters):

(a) The International Telecommunication Union (ITU), established in 1865.

(b) The World Meteorological Organization (WMO), established in 1873.

(c) The Universal Postal Union (UPU), established in 1874.

(d) The International Labour Organization (ILO), established in 1919.

(e) The World Health Organization (WHO), established in 1919.

(f) The Food and Agriculture Organization (FAO), established in 1945.

(g) The United Nations Educational, Scientific and Cultural Organization (UNESCO) established in 1945.

(h) The International Civil Aviation Organization (ICAO), established in 1947.

(i) The International Maritime Organization (IMO), established in 1948.

(j) The United Nations Industrial Development Organization (UNIDO), established in 1966.

(k) The World Intellectual Property Organization (WIPO), established in 1967.

(l) The World Tourism Organization (WTO), established in 1974.

(m) The International Fund for Agricultural Development (IFAD), established in 1977.

## Box 7.4 – OPEC

The OPEC (Organization of the Petroleum Exporting Countries) was established in 1960 with the aim of establishing a sufficiently strong group of producers to constitute a relevant trading partner vis-à-vis the major oil companies. Its initial members were Saudi Arabia, Kuwait, Iran, Iraq and Venezuela, which were joined by Qatar in 1961, Indonesia and Libya in 1962, the United Arab Emirates in 1967, Algeria in 1969, Nigeria in 1971 and Ecuador in 1973. The results were mediocre in the early years, but the crisis of the international monetary system of the late 1960s and early 1970s changed the situation. In response to the devaluation of the dollar (and formally to American support for Israel in the fall 1973 war against several Arab countries), OPEC first operated in the fall of 1973 effectively as a cartel, forcing a rise in the price of oil that became known as the first oil shock and that triggered the stagflation crisis, that is to say, of simultaneous inflation and economic stagnation, which marked the short-term situation of capitalist market economies in the mid-1970s.

OPEC operated once again as a cartel in the late 1970s, triggering what became known as the second oil shock. However, internal divergences and increased production and export by non-member countries subsequently reduced its relative power in the global context.

Since 1973, there have been a few changes in OPEC member countries. Gabon became a member in 1975, Ecuador abandoned in 1992, Gabon abandoned in 1995, Ecuador returned, Angola became a member in 2007, Indonesia abandoned in 2009, Equatorial Guinea became a member in 2017, the Republic of the Congo also became a member in 2018, and Qatar left in 2019.

## Box 7.5 – Causes of the collapse of the centrally-planned economies

The experiments of central planning of national economies, that is to say, of imperative planning of the macroeconomic variables and the main elements of the activity of the majority of the economic units, especially those of larger size or considered of crucial importance for economic life, occurred in two types of circumstances:

• war economies, that is to say, situations in which the state intervened in the economy to mobilize and manage resources for its contribution to a military effort;

• attempts to build socialist societies, that is to say, situations in which the state intervened in the economy to promote transformations of social structures in order to overcome the problems perceived in societies with capitalist market economies.

The experiences of central planning of national economies in situations of war economy were always presented as transient in that they should become unnecessary once obtained the military victory for which they were implemented. As explained in the text, especially in chapter 6, these experiences have often resulted in structural changes that have not been fully reversible. They have never, however, led to a permanent change in the dominant economic system in any national economy.

The experiences of central planning of national economies in situations of attempts to construct a socialist society were always presented as definitive, insofar as permanent structural changes of the predominant economic system in the national economy were to be made, even to guarantee the stability of the desired socialist society. However, these structural changes of the predominant economic system in the national economies involved turned out to be reversible, in the most important cases after a few decades of regular operation in a predominant system of centrally-planned socialist economy.

As mentioned in the text, the question of the reasons for the apparent initial success and subsequent failure of the central planning experiences of national economies in attempts to build a socialist society is too complex to be systematically addressed in this book. It is worthwhile, however, to add some additional comments.

Until World War I, socialist doctrine, in all its variations briefly evoked in the text – anarchist, social-democratic, communist – admitted that the construction of a socialist society could only be carried out in highly developed capitalist countries. However, the experiences of central planning of national economies as attempts to build socialist societies were, as a rule, carried out in only moderately or even underdeveloped national economies, such as Russia (or Soviet Union), China, or most of the countries that established the so-called regimes of popular democracy in Eastern Europe in the mid-twentieth century. Section D of Chapter 6 briefly recalls the hesitations that this has provoked in Soviet economic policy for about a decade after the seizure of power. However, as also referred to in this section and later in chapter 7, it cannot be said that the project of using the socialist economic system of central planning as an instrument of a policy of economic development has generally been a failure. On the contrary, the performance of the national economies referred to was generally positive and comparable to that of the capitalist market economies in the processes of take-off and consolidation of modern economic growth. It was especially after the maturation of these processes was advanced that the difficulties in maintaining the good economic performance were apparent.

Two explanations have been suggested for this late failure of the centrally-planned economies.

One is the Soviet Union's economic and political competition with the United States of America for world hegemony between the 40s and 80s of the 20th century, the so-called Cold War. The Soviet economy was at first at a disadvantage, due to the relative backwardness and the greater destruction of human and material resources during World War II, and it was never able to recover from this disadvantage. This may be partly explained by the fact that, although the two economies have natural and human resources of roughly the same size and similar spheres of influence abroad, most highly developed economies were part of the American sphere of influence. Without belittling these facts, it is worth noting that the Soviet economy performed better during times of relative isolation prior to World War II and recovery in the immediate aftermath of war than after this recovery was completed.

This points to the greater relevance of the other explanation, which suggests that the priority systematically attributed by Soviet economic policy to investment and military consumption over civilian consumption and the heavy industry sectors over the rest of the economy proved to be efficient in the early stages of an economic development and in situations of actual or potential military conflict where the problem of priority allocation of resources was limited to a relatively small number of goods and services; however, out of a context of war economy or the start of a process of modern economic growth, these particular economic policy choices and the bureaucratic inefficiency of centralized planning of the economy in general were the main factors of the long-term relative mediocrity of the economic performance of the Soviet Union and the countries under its influence when the need to create greater economic complexity and diversity was called into question.

# 8 – The second globalization and the world economy in the early twenty-first century

From the 1980s onwards, the world economy and society witnessed the disappearance of the institutional obstacles that, since the mid-1910s, had hindered the interaction between its partial economies and societies. In fact, apart from the absence of worldwide wars and deep and generalized depression, such as those that had occurred between the 1910s and the 1940s, there was, as mentioned in the previous chapter, the collapse of the socialist centrally-planned economies as the alternative to capitalist market economies, which had been an important element of the world economy and society between the 1940s and 1980s. At the same time, there was a reduction in the intervention of public authorities in economic life, both in terms of regulation of economic activity and in terms of attempting to influence this activity through structural and short-term economic policies, while the organizations of public initiative lost relative importance; all these changes configured what is currently termed neoliberalism.

As a result of this new institutional framework, what was quickly known as the process of the globalization, or, taking into account the analogy later built with the process of formation of the world economy and society itself, as the process of the second globalization was unleashed. The process of the second globalization was further driven by the concomitant development of information and communication technologies and by technological advances in other sectors of economic life.

The changes in the economic system triggered by the transformations of technological and institutional aspects associated with the second globalization consisted, in a first approximation, of the return to a more predominantly market capitalist system than had been customary in the world economy for most of the twentieth century. These changes had a complex impact on market and organizational forms: on the one hand, oligopolistic market structures and centralized, functionally departmentalized, multidivisional, or matrix forms of firm organization continued to predominate in most of the technological maturity sectors; on the other hand, the systematic fragmentation of production processes and the intensification of the use of subcontracting, with a reduction in the degree of vertical integration, and relocation in the context of the globalization led to the development of internal structures and inter-firm relationships, usually described to as networking organizational models.

## A – The technological framework of the second globalization

It is usual to associate the development and diffusion of information and communication technologies to the process of the second globalization, and even to explain this process by that diffusion. It is a correct association and an undoubtedly exaggerated explanation. In any case, it will be reasonable to give the development and diffusion of information and communication technologies a prominent role in the technological context of the second globalization.

However, this should not obscure the existence and importance of other lines of technological progress, to which reference must also be made.

## Development of information and communication technologies

The development and diffusion of information and communication technologies have been carried out during the last decades of the twentieth century and the beginning of the twenty-first century according to two fundamental lines:

(a) Designing and making available hardware and storing and processing information and communications software with combinations of physical size, operational power, and increasingly user-friendly acquisition and operation costs.

(b) Conceiving and making available a network articulation of these devices, increasingly involving mainly the possibility of direct and almost instantaneous communication among users through the network that was named Internet.

It is worth noting the importance of the artificial satellites of communications for the construction of the physical support of this articulation, undoubtedly the main immediate practical result of the effort to conquer space whose origins were mentioned in the previous chapter.

The impact of the development of information and communication technologies has been felt unevenly and in particular has been introduced in the various sectors of the economy with significant gaps but has had a generalized sectorial impact which can be expected to continue in the evolution of the contemporary world economy in the near future.

## Other lines of technological progress

Among the other lines of technological progress that were decisive for the economy of the second globalization era, the following should be highlighted:

(a) Biotechnology – The productive use of biological processes has improved, especially with the development of genetic and gametic manipulation, which has allowed the creation of organisms with characteristics more suitable for the intensification of their economic performance, in particular the so-called genetically modified organisms; and expanded, especially with its spread to sectors of economic activity, namely the industrial sector, in which its importance was traditionally smaller.

(b) Computer assisted production – The application of information and communication technologies to production, especially industrial production, has allowed significant progress in the automation of various activities, with the consequent increase in productivity.

(c) Innovations in materials – Progress in the field of chemical manipulation, especially at the molecular level, has allowed the introduction of new materials, truly created by human innovation and specifically designed for certain economic applications.

(d) The progress of transport – The period of second globalization has not radically innovated in the field of transport. Road-based and rail transport, ocean water transport and air transport therefore remain the basis of the industry at the beginning of the 21st century. There were, however, multiple incremental innovations that increased the efficiency of transport and an undoubted increase in the respective network, which allowed gains in accessibility for many regions of the world.

(e) Innovations in the field of energy – In the field of energy, there are two lines that extend the tendencies of the previous period, each of which, in turn, faces problems, which raise limits to their practical use.

One of the development lines in the field of energy is the predominance of the use of hydrocarbons, although with relative intensification of the use of gaseous hydrocarbons, the so-called natural gas, in relation to liquid hydrocarbons, crude oil and its by-products, allowing a more systematic exploitation of resources in fossil fuels. This line faces problems mainly due to emissions into the atmosphere of several gases, of which carbon dioxide stands out, and the generalization of the conviction that these emissions are causing a global climate change, called global warming, due to the greenhouse effect. As a consequence, targets and mechanisms for limiting such emissions have been agreed upon, notably the Kyoto Protocol, agreed in 1997 and proposing emissions ceilings between 2005 and 2020, and more recently by the Paris Agreements of 2015.

Another of the development lines in the field of energy is the use of the so-called atomic energy. This line faces problems mainly due to security concerns, which have been repeatedly renewed following nuclear power plant accidents, notably Three Mile Island in the United States of America in 1979, Chernobyl in Ukraine (then part of the Soviet Union) in 1986 and Fukushima in Japan in 2011. As a consequence, the construction of nuclear power plants experienced fluctuations, in the face of the contradictory stimulus, resulting from their contribution to reducing the global warming process and negative impact of security concerns on cost increases.

It is clear that a solution to the problems generated by these two lines of evolution in the field of energy can come from the return to the use of the so-called renewable energies, that is to say, the energy sources whose quantity is systematically replaced by natural spontaneous processes. Return, because these sources of energy, as pointed out in due course, were the predominant ones before the start of the process of modern economic growth; a return which, however, implies a very considerable increase in its efficiency and effectiveness in order not to jeopardize the increased needs resulting from the expansion of the population and the level of economic activity in the world; increase of efficiency and effectiveness which, in turn, can be expected to result from what is the basic characteristic of modern economic growth: the systematic application of the results of scientific research to economic activity. It is a line of force that is being sketched at the time of the second globalization and is expected to intensify in the future.

## B – The institutional framework of the second globalization

The institutional framework of the second globalization was created, on the one hand by the transition of the old socialist centrally-planned economies to capitalist market economies, on the other hand by the decreasing role of public intervention in economic life, configuring what is currently called neoliberalism.

### The transition from socialist centrally-planned economies to capitalist market economies

After the collapse of the old socialist centrally-planned economies referred to in the previous chapter, a process of transition for systems of capitalist market economy followed. This transition was generally quick, through the dismantling of institutions and organizations linked to the imperative planning of economic activity, the restoration of price mechanisms and budgetary constraints as forms of coordination of economic activity, the liberalization of private initiative to create productive units, the privatization of state firms and the opening to a deeper interaction with the world economy as a whole.

These transformations were in some aspects analogous to those that occurred at the same time in capitalist market economies, with the disappearance of elements of mixed economy in the context of neoliberalism, to which reference is made below. However, they faced particularly serious difficulties due to two fundamental problems: on the one hand, the changes in prices and production structures were very large due to the distortions created by the central planning mechanisms in relation to what would be the result of a market operation; on the other hand, there were, as a rule, no private national entities capable of acquiring the main state firms in the majority of countries in transition from a socialist centrally-planned economy to a capitalist market economy. The problem of the extension of the adjustment of prices and of production structures was in practice resolved over time; as a consequence, the early steps of the transition periods were, as a rule, periods of significant disturbances in economic life, in particular with severe recessions in almost all national economies and high inflation and unemployment rates. The problem of the absence of potential domestic buyers for the main firms was solved by one of three solutions: selling to foreign firms, usually multinational firms from countries with capitalist market economies; appropriation by influential members of the former state and party bureaucracy who became the owners; creation of a property structure scattered more or less systematically by the citizens of the country. None of the solutions proved to be entirely satisfactory: the former placed the bulk of the economies under foreign control; the second generated inefficient (and often corrupt) market control structures; and the third was extremely unstable by the absence of cores of strategic management of firms, tending rapidly to evolve towards one of the other solutions through the massive sale of shares by the majority of small owners. These problems were often accompanied by some difficulty in competition in international markets, creating serious short-term external imbalances.

In any case, once the transition periods, ranging from one to two decades, were over, usually with the help of international organizations already existing (such as the IMF or the World Bank), or expressly set up to support these transition processes (such as the EBRD – European Bank for Reconstruction and Development, an initiative of the European Union), countries with former socialist centrally-planned economies tended to gradually enter into the new structures of the world economy with less and less specificities resulting from their past. Few exceptions should be noted, most of which resulted from national conflicts that delayed or blocked economic transition. The most conspicuous case of blocking the transition process is that of the Democratic People's Republic of Korea (North Korea), which remains in the second decade of the twenty-first century as a socialist centrally-planned economy in accordance with the classical Soviet model, in face of a Republic of Korea (South Korea) that has become a highly developed market capitalist economy.

## Neoliberalism

As suggested in the introduction to the chapter, it is possible to distinguish several aspects in what is currently termed neoliberalism: the first has to do with the reduction of the regulation of economic activity by the public authorities; a second has to do with the reduction of the attempt to influence this activity by the public authorities through structural and short-term economic policies; a third has to do with reducing the presence economic organizations of public initiative. However, it is worth noting that, despite the significant ideological contestation suffered, public social security systems have essentially maintained its role and the characteristics acquired in previous periods, although they suffered structural problems due to the demographic evolution, namely population aging, which led to the reduction of the participation rate, that is to say, the ratio between the labour force and the total population, especially in the developed societies.

## The reduction of the regulation of economic activity

It is possible to distinguish in the process of reducing the regulation of economic activity international aspects and domestic aspects.

With regard to international aspects the trend towards the liberalization of commercial and financial transactions should be underlined.

The liberalization of commercial transactions was, as explained in the previous chapter, a process under way since the immediate second post war of the twentieth century, with periods of greater and lesser dynamism. A very dynamic period occurred in the late 1980s and first half of the 1990s, with the so-called Uruguay Round of negotiations to reduce obstacles to trade in the context of the General Agreement on Tariffs and Trade. Indeed, it was possible during the course of that round to agree on the formation of a World Trade Organization (WTO), which took over the project of an international organization to supervise the commercial practices of member states, arbitrating the conflicts that such practices might arise (a project that had failed with a slightly different denomination in the immediate post-World War II period, as explained in the previous chapter). The WTO was effectively constituted in 1996 under the terms set in the Marrakesh Treaty of 1994. At the same time, the principles of the General Agreement on Tariffs and Trade were confirmed and extended to new sectors such as services, transactions involving assets such as foreign investment and intellectual property.

The impact of the WTO's constitution and the membership of the overwhelming majority of national economies, including major world national economies, was certainly in favour of the intensification of the liberalization of world trade. It should be noted, however, that the dynamism of liberalization dwindled at the beginning of the twenty-first century. In particular, the first round of negotiations to reduce obstacles to trade in the context of the WTO, the so-called Doha Round, failed.

The liberalization of financial transactions can be considered as a consequence of the degrees of freedom opened by the international monetary system formalized by the Kingston Agreements of 1976 referred to in the previous chapter. Indeed, the easing of exchange rates changes makes it possible to maintain both a full convertibility regime and a system of free movement of capital; and the generality of national economies with capitalist market economies, especially the more developed ones, took advantage of this possibility to liberalize capital movements.

It is worth noting that, contrary to what happened with the movements of goods and capital, the movements of people were not the object of a process of liberalization in the context of the second globalization. In fact, the progress of transport has greatly increased the temporary movements of people, whether for professional or leisure purposes. However, the restrictions on international migration, that is, on permanent changes of residence between countries, remained, as a rule, significant. These restrictions had two consequences: on the one hand, while the movement of goods is now greater in absolute terms and more important when compared with the level of economic activity than at the time of the first globalization and capital movements are now much larger in absolute terms and far more important than the level of economic activity than at the time of the first globalization, migratory movements are now clearly inferior in absolute terms and much lower in relative terms than at the time of the first globalization; on the other hand, a significant part of the migratory movements that actually take place is carried out outside the law, creating important communities of clandestine residents, mainly from relatively undeveloped countries, living in highly developed countries.

With regard to domestic economic aspects of national economies, the reduction of the regulation of economic activity was generally a consequence of the reduction of economic policy and the reduction of the economic organizations of public initiative referred to below. In fact, most countries maintain supervisory structures in sectors considered basic to economic life or fundamental for political reasons;

they also maintain structures to defend competition; however, the direct orders of public authorities and restrictions related to the activity of economic agents were reduced. Only in the aspects of economic life with potential impact on the balance between the technical environment and the natural environment, the so-called environmental impacts, can we find any systematic exception to this trend.

### The reduction of economic policy

In the analysis of the reduction of the attempt to influence the economic activity through economic policies, it is necessary to distinguish between the structural domain and the short-term domain.

In what concerns the structural domain, it can be said that the reduction of economic policy essentially consisted of moving from a situation in which attempts to promote growth and development were carried out through public initiatives to a situation in which attempts to promote growth and development are merely made through the institutional framework and through the supply of public goods.

In what concerns the short-term domain, it can be said that the reduction of economic policy consisted essentially of moving from a situation in which the attempt to obtain a combination of low unemployment and inflation rates using budgetary and monetary instruments, (giving priority to stimulate economic activity and employment), to a situation where price stabilization using monetary instruments became the usual priority.

These changes allowed, on the one hand, a reduction in the weight of the state's financial activity in the economy, by the reduction of public expenditures, taxes and the contraction of public debt; and implied, on the other hand, a reduction in the use of mechanisms of command and an increase in the use of market mechanisms in the implementation of the economic policy that continues to be carried out.

### The reduction of economic organizations of public initiative

The reduction of the presence in the economic activity of organizations of public initiative implied, of course, an almost complete absence from the creation of such new organizations, either by the constitution of new units or by the nationalization of previously existing ones. It also involved extensive and systematic programs of privatization of public firms in almost all sectors, even in those where such firms were traditionally justified by the need to provide a public service or by the existence of a natural monopoly.

As a consequence of these trends, organizations of public initiative play a clearly lower role in economies at the beginning of the 21st century than usual over most of the previous century. This naturally opened up more space for private sector organizations. In particular, programs of privatization of public firms created opportunities for strengthening strategic positions for previously existing economic groups, technically and financially capable of replacing public authorities in activities often of crucial importance to economic life; these opportunities have been widely used.

## C – Changes in the economic system associated with the second globalization

As suggested in the introduction to the chapter, the changes in the economic system triggered by the institutional and technological transformations associated with the second globalization consisted in the return to a more predominantly market-based mode of functioning and a more predominantly capitalist mode of organization than was customary in the world economy during most of the twentieth century and had ambivalent effects on business life: they consolidated, on the one hand, oligopoly market forms and centralized, functionally departmentalized, multidivisional, or matrix forms of business organization; on the other hand, the systematic fragmentation of production processes and the intensification of the use of subcontracting and relocation in the context of globalization, leading to the development of internal structures and inter-firm relationships, usually described through reference to network organizational models. From a certain perspective, this evolution can be seen as a partial substitution of the so-called visible hand of the management hierarchy by the so-called invisible hand of the market, partially reversing what was typical of the process of formation of the multidivisional firm.

### Reinforcement of the market functioning and capitalist organization

The reinforcement of the market functioning and of capitalist organization was, of course, clearer in the national economies where there previously existed schemes of central planning and schemes of socialist organization; it was, however, equally clear in national economies that dismantled mixed economy structures; and it was even clear at the level of the world economy, not only because of the disappearance of international organizations linked to the experiences of centrally-planned socialist economies, but also because of the changing principles of the main international organizations traditionally linked to capitalist market economies. Indeed, changes in the international monetary and financial system have not only reduced the responsibility and need for national monetary authorities to intervene in exchange and capital markets, but have also enabled the International Monetary Fund to adopt technical recommendations and policies to liberalize money markets, financial markets and markets in general, when support is requested by countries with short-term balance of payments difficulties; the World Bank has also tended to abandon its traditional policy of frequent financing for investments by public firms and to adopt a policy of systematic financing of investments by private firms; and the replacement of the Secretariat of the General Agreement on Tariffs and Trade by the World Trade Organization was of particular importance, since, in establishing a dispute settlement mechanism on trade and customs practices, it allowed, at least from the formal point of view, to move the resolution of these conflicts from a level of political negotiation (tending to situations of compensatory intervention of the several governments involved), to a level of technical judgment, leading to decisions favourable to free-trade practices.

## Permanence and dynamics in market and firm structures

Despite the deregulation trends associated with the second globalization, the main sectors with global markets continued to pose particularly demanding challenges in terms of barriers to the entry of new producers, either by the investments required for this entry, or by the limitations imposed in some of them by the need to control natural resources and technologies. It is therefore not surprising that oligopolistic market structures and a large viscosity of the large firms present in each sector remain. This has not, however, prevented a gradual but significant renewal of leading firms in some of these sectors, and a change in the most relevant sectors, with the emergence of some new sectors.

This emergence of new relevant sectors naturally occurred mainly in the areas linked to the most important innovations for the second globalization process. The field of information and communication technologies and the field of electronics have been particularly significant in this respect.

Given the weight of oligopolistic market structures, it is not surprising the permanence of forms of centrally and functionally departmentalized, multidivisional, or matrix organization of the key players in these markets. However, as pointed out in the introduction to this chapter, the systematic fragmentation of production processes and the intensification of the use of subcontracting, the reduction of vertical integration, and relocation in the context of globalization led to the development of internal structures and inter-firm relationships, usually described through reference to network organizational models.

Network structures can, in fact, be understood as a more flexible structure of multidivisional or matrix-type charts, highlighting and formalizing only divisional or departmental interconnections considered crucial for the core operation of the firm as a whole.

The inter-firm relationship networks can, in fact, be understood as structures of articulation of interdependent activities in which the coordination by a hierarchically superior management level is replaced by coordination through market mechanisms. As a rule, these structures are built around a larger central firm, to which direct or indirect peripheral firms of smaller size and greater specialization are linked, if not partially related to each other. This phenomenon should be understood as a result of the significant reduction in transaction costs in relation to the internal organization costs of firms as a result of the diffusion of innovations in the field of information and communication technologies.

## D – Other aspects of the era of the second globalization

### Great powers

The collapse of the centrally-planned economies, of the Soviet sphere of influence, and of the Soviet Union itself meant that Russia, the largest of the national economies resulting from the break-up of the Soviet Union, failed to play the role of the Soviet Union as a potential rival of the United States of America in the world economy and society, even though Russia has sought to restore its hegemonic role in the space of the former Soviet Union. Initially, Russia made efforts to create formally a Eurasian Community of Independent States, which did not survive; then in informal terms tried to establish allied political regimes in some of the states resulting from the disintegration of the Soviet Union; and in formal terms it accomplished the annexation of parts of those states, a process not recognized by the most of the international community.

The era of the second globalization saw the start of the process of modern economic growth in some of the world's largest demographic countries such as China, India and Indonesia. This created the conditions for the largest of them, China, to compete with the United States of America over the hegemony of the world economy and society. However, this is a potential for the future rather than a reality of the early twenty-first century, since none of these countries, and in particular China, is already a highly developed country, but all are still only medium or low developed economies.

At the same time, the major highly developed European economies have lost any decisive role in the world economy due to their relatively small demographic size and because the economic space they have formed, the European Union, has not been able to assert itself as a coherent space; as a matter of fact, neither does it display the characteristics of a national economy, nor do they play a joint action at the international level, with the exception of the commercial domain. In addition, it was one of the economic areas in the world where the crisis of the end of the first decade of the 21st century was more severe, especially because of the difficulty of recovering from the impact of this crisis.

[On this topic, see Box 8.1 – From the European Communities to the European Union]

For these reasons, the United States of America remains at the beginning of the 21st century as a world hegemonic power, since it is the most developed of all large national economies considering population size.

### Economic situation

At the time of the second globalization, the economic situation maintained the characteristics acquired following the transformations of the mid-1970s: long periods of expansion, interrupted by periodic crises, with a great deal of synchrony between the most of the national economies, witnessing the growing integration of the world economy.

Among these crises, it is worth mentioning that of the end of the first decade of the 21st century, triggered by the collapse of a speculative bubble focused on the real estate market in the United States of America. This crisis was called the Great Recession, by analogy with the Great Depression, but this was a hasty and exaggerated evaluation, because the economy of the world in general recovered relatively quickly the previous levels of economic activity and growth. An exception was the situation in the European Union, which displayed a poor performance for a long time, especially affected by the impact of the crisis in some of the former national economies that are part **of it, in** what has become known as the sovereign debt crisis.

[On this topic, see Box 8.2 – The Great Recession and the Sovereign Debt Crisis]

## Key topics of Chapter 8

• Technological and institutional innovations of the time of the second globalization and relations between them.

• Transition process of the old national economies with predominance of the socialist centrally-planned economic system to the predominance of a capitalist market system and difficulties faced in this process.

• Neoliberalism and reduction of the role of the public powers in the economic life in its different aspects.

• Generalization of subcontracting and relocation and new forms of organization and business relations.

## Questions for reflection

• What conditions must a national economy present to play a hegemonic role in the world economy ?

[On this topic, see Box 8.3 – Characteristics of a hegemonic economy]

• What difficulties does a space arising from a process of supranational integration such as the European Union have to face to discuss global economic hegemony with the US ?

• What effects does the contemporary world economy face because of the relation between the technical environment and the natural environment ?

[On this topic, see Box 8.4 – Balances and imbalances between the technical environment and the natural environment]

## Box 8.1 – From the European Communities to the European Union

Throughout the last three decades of the twentieth century and the beginning of the twenty-first century, the European Communities have carried out both enlargement and deepening processes that have transformed them into the European Union.

The enlargement process took place in five stages:

1) In 1973, Denmark, Great Britain and Ireland became members of the European Communities.

At the same time, the remaining EFTA countries (Austria, Iceland, Norway, Portugal, Sweden and Switzerland) and Finland signed free trade agreements with the European Communities.

2) In the 1980s, Greece (in 1981) and Portugal and Spain (in 1986) became members of the European Communities.

3) In 1990, the former German Democratic Republic was integrated into the Federal Republic of Germany, thus enlarging one of the member states.

4) In 1995, Austria, Finland and Sweden became members of the European Union.

5) At the beginning of the 21st century, the Czech Republic, Cyprus, Slovenia, Slovakia, Estonia, Hungary, Latvia, Lithuania, Malta and Poland (in 2004), Bulgaria and Romania (in 2007) and Croatia (in 2013) became members of the European Union.

The deepening process involved three main aspects:

(a) The conclusion of the formation of an economic union, that is to say, an area in which there is freedom of movement of goods, persons and capital, freedom to provide services and freedom of establishment of economic units, in 1993. Following the agreement for this purpose, the European Communities was renamed the European Community in 1987.

(b) The link with the economic union of the pillars of internal affairs and justice and of common foreign policy in 1993. Following this change, the European Community was renamed European Union.

At the same time (1994), an agreement to create a European Economic Area, trying to apply the rules of economic union, was established between the European Union and the EFTA countries (at the time, as still today, Iceland, Liechtenstein, Norway and Switzerland; Switzerland did not formally participate in the European Economic Area, but applied most of its rules for all practical matters).

(c) The establishment of a monetary union, that is to say, of a single monetary unit (the euro) and common means of payment in 1999. However, not all members of the European Union are members of the monetary union, either by choice (the cases of Great Britain, Denmark and Sweden), or for non-compliance with the conditions deemed necessary for entry into this area (the cases of Bulgaria, the Czech Republic, Croatia, Hungary, Poland and Romania). Thus, only Austria, Belgium, France, Finland, Germany, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain (from the outset), Greece (since 2001), Slovenia (since 2007), Cyprus and Malta (since 2008), Slovakia (since 2009), Estonia (since 2011), Latvia (since 2014) and Lithuania (since 2015) belong to the monetary union.

These transformations have removed from the economies of the member countries of the European Union some institutional characteristics of a national economy, but did not give the European Union all of these characteristics. In fact, the European Union is a customs area; member states are still fiscal spaces; Union and member states share competence in terms of legal and political spaces; and there is a monetary union which, however, does not cover the whole of the European Union.

## Box 8.2 – The Great Recession and the Sovereign Debt Crisis

As explained in the text, the crisis at the end of the first decade of the 21st century was triggered by the collapse of a speculative bubble focused on the real estate market in the United States of America. The crisis affected particularly the financial system, which was involved in this speculative bubble through securitization mechanisms, that is to say, transformation of debts of various types, particularly mortgage loans, into complex and derivative securities, more easily tradable, but more difficult to assess in terms of the risks involved. As a result of the crisis, there were some effective bankruptcies and some bail out operations of financially bankrupt financial firms in the United States of America, and there was a tendency, although moderate and brief, to reinforce some restrictions on financial operations that had been deregulated during decades. As might be expected, these shocks had repercussions on the level of economic activity and employment, albeit of an intensity that turned out to be relatively moderate and duration which turned out to be relatively short.

In the case of the European Union, some member countries have been affected quite intensely. In some cases, of which Greece may be considered as paradigmatic, this was due to past negative structural balances of external payments and public accounts, which could no longer be financed on international capital markets due to the crisis. In other cases, of which Ireland may be considered as paradigmatic, this was due to the collapse of exceptionally large banking speculation movements, which forced massive intervention by the government to recover a significant part of the banking sector from a bankruptcy situation. In both cases the countries in difficulty have resorted to emergency aid from the European Union, supported by the European Central Bank and the International Monetary Fund. In the cases of the first type, financial recovery (that is to say, the reduction of negative balances of external payments and public accounts with a return to financing by international capital markets) was delayed and carried out at the cost of a recession followed by a slow economic recovery – the paradigmatic case of such a recovery was Portugal, whose recovery was formally achieved in 2015; the case of Greece has not, however, evolved so favourably and the formal recovery was delayed till 2019. In the cases of the second type, there has generally been a stabilization and recovery of the financial and economic situation within a relatively short period of time.

These situations, which became known as the sovereign debt crisis, have contributed to reducing the cohesion of the European Union and affecting its overall economic performance as well as the ability to assert itself as an economic power in the world economy.

## Box 8.3 – Characteristics of a hegemonic economy

The existence of a hegemonic position of a national economy in the world economy implies, as a rule, three conditions:

a) To be one of the largest national economies in the world – Britain was already one of the largest economies in the world in the eighteenth century and reinforced this position with the precocity of its modern economic growth process. The United States of America has become one of the largest economies in the world with its geographical expansion from the Atlantic to the Pacific and its process of modern economic growth throughout the nineteenth century.

b) To be one of the most developed national economies in the world – Britain was already one of the most developed economies in the world in the eighteenth century and reinforced this position with the precocity of its modern economic growth process. The United States of America has become one of the most developed economies in the world with its process of modern economic growth throughout the nineteenth century.

c) Being an economy with strong interaction with the rest of the world economy – Britain was already one of the economies with a more significant international role in the eighteenth century and reinforced this position with the precocity of its modern economic growth process and the planetization of the Euro-Atlantic world-economy: the British currency became the most used in international commercial and financial transactions and London's financial market became the world's leading financial market. The United States of America had a relatively modest international role until late in the twentieth century, but after World War II the American currency has become the most used in international commercial and financial transactions and the financial market of New York the main financial market in the world.

## Box 8.4 – Balances and imbalances between the technical environment and the natural environment

The existence of a technical environment, resulting from human action, distinct from the natural environment, that is to say, from nature untransformed by human beings, consisting of wild flora and fauna and non-humanized landscape, is an inevitable consequence of the existence of human beings, insofar as they are characterized precisely by activities of nature transformation (among other aspects of the process of hominization, which can not be developed here).

In societies with a predatory way of life, the technical environment consisted only of artifacts a result of the manufacture of instruments.

In societies with a way of life based on cultivation, the technical environment also included the domesticated fauna and the cultivated flora, resulting, respectively, from the activities of animal husbandry and agriculture.

Sedentary agriculture created a fourth element of the technical environment, the humanized landscape, consisting of cultivated fields and villages. This element of the technical environment has increased significantly with the emergence of cities, densely populated and systematically humanized spaces.

Phenomena of disturbance of the spontaneous equilibrium of the natural environment by the impact of the technical environment were not unknown to societies prior to modern economic growth. The introduction of exotic plant and animal species, deforestation, the salinization of land by its systematic irrigation, depletion of mining deposits, etc. are examples of these situations. It was, however, always a matter of merely local or regional scope and impact.

Modern economic growth has altered this situation, due to the increase in the number of human beings and the economic activity carried out by them, reflected in the increase of their standard of living. It has indeed become possible for humankind to disturb globally equilibriums of the natural environment. The rise in the average temperature of the Earth's atmosphere and oceans since the second half of the 20th century and the weakening of the ozone layer of the upper atmosphere are examples of phenomena nowadays explained by most scientists as a result of human economic activity.

These situations of destruction of natural resources by human economic activity must be understood in economic terms within the typology of goods explained in box 1.4 – these are collective goods, for which there is a consumption rivalry, but there is no possibility of exclusion. Faced with situations of destruction that must be halted or reversed, it is necessary to create new institutional frameworks, at national and international level, to ensure the preservation of resources. A challenge for the humanity of the 21st century.

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