1.
The pre-industrial economies: their structural characteristics

In order to understand pre-industrial economies, we must imagine a radically different world from the one we know today. Regarding his access to material goods, an Englishman in the mid-18th century had more in common with a Roman of Julius Caesar's time than with one of his own great-grandchildren (who had, however, no idea about personal computers or mobile telephones). [1] This illustrates differences in the growth rates and the pace of change in economic and social structures: while not completely static, these were certainly very slow before the Industrial Revolution, but became increasingly rapid afterwards, at times even frenetic. To a great extent, this change of pace is due to the transformation of prevalently agrarian economies into industrial economies. However, the Industrial Revolution did not arrive from nowhere; some areas (the number is a matter of debate), mainly in Europe, had already begun to accelerate centuries beforehand, differentiating themselves from the rest of the world and launching what is now commonly known as the "Great Divergence". This chapter aims to provide a brief description of the structural characteristics of pre-industrial agrarian economies and their semi-immobility, which could be shaken up only by a far-reaching trauma, of which the "Black Death" of the 14th century is the best example.

1.1. From the Neolithic revolution to the Bronze Age urban revolution

Until 10-12,000 years ago, agrarian societies simply did not exist. People lived in groups of hunter-gatherers, finding food provided spontaneously by nature. These groups were limited in size and not very numerous, given that the global population is estimated to have numbered no more than 6 million. The situation then changed:

[1] D.S. Landes, *The Unbound Prometheus: Technological Change and Industrial Development in Western Europe from 1750 to Present*, Cambridge, 1969. A similar point is made by C.M. Cipolla, *Before the Industrial Revolution: European Society and Economy, 1000-1700*, London, 1993.

in different parts of the world (Near East, China, Central and South America) and independently of each other, some groups of humans settled down, built villages and began to cultivate the land. In other areas (North-Eastern America, perhaps the Sahel, equatorial Africa and New Guinea) this transition took place autonomously, but later. In even more areas of the world, agriculture was imported together with the seeds of plant species that had been domesticated elsewhere. This is the case of Central and Western Europe, where wheat from the Near East was introduced between 6,000 and 3,500 BCE. In general, autonomous transition to agriculture occurred in areas with a relative abundance of wild species of both plants and animals suitable for domestication.

This was the first "agricultural revolution" in history, and it also marks the first acceleration in population growth. By the start of the Common Era, the world's population had increased by over 40 times and amounted to 250 million. The growth rate was still very slow by contemporary standards (less than 0.04% per year), although this was much higher than was typical in pre-agrarian societies. But what about the *per capita* availability of resources, or about living conditions? From this point of view there is more doubt about improvements, since the classical idea – that human beings "discovered" agriculture and became farmers following a crucial invention – has largely been replaced by the idea that people did not start to cultivate the land and create permanent settlements until demographic pressure forced them to do so. The assumption is that they already possessed some key skills from simply observing nature; for example, they knew how to propagate plants by placing seeds in the ground. In this case, agriculture was not such a momentous discovery, and living conditions actually worsened in many ways. As shown by the reduced stature of skeletal remains, the human diet became impoverished with its increasing dependence on cereals. Diseases became more numerous and more frequent with increased population density and close proximity with domesticated animals and their parasites. In addition, farmers were obliged to work longer and harder than their hunter-gatherer ancestors to produce what they needed for survival.

However, the appearance of agrarian societies also brought some definite benefits. For example, they were more complex – although inevitably less egalitarian – and could coordinate labour and the use of resources in ways unimaginable in a society of hunters and gatherers. Diversification of tasks and the development of a more complex social structure allowed the accumulation of skills and knowledge, and their transmission from one generation to the next was facilitated by the invention of writing (circa 3,200 BCE in Mesopotamia). These advantages developed fully only after another major historic development: the urban revolution of the Bronze Age. The first cities began to appear in different parts of Europe and Asia from approximately 3,000 BCE. This development is associated with a sharp increase in economic and social complexity, due to the cities' capacity to organise activities across a vast surrounding territory. At the same time, the first states began to form, with characteristics – according to eminent social anthropologist Jack Goody – not

generally observable in other parts of the world.[2] In particular, the Eurasian states soon developed the ability to impose systematic forms of taxation on their own citizens, enabling them to channel resources towards new and increasingly complex uses. There was also a remarkable growth of social stratification, leading to the emergence of new aspirations that drove consumption, technological innovation and the general advancement of knowledge.

In comparison with the Neolithic revolution, the urban revolution was much more localised, and was initially limited to Europe and Asia. This was essentially the start of a sort of proto-divergence between Eurasia (unsurprisingly it was the area with the most advanced pre-industrial economies) and the rest of the world. Much of traditional historiography has underlined the differences between West (Europe) and East (especially East Asia) in order to explain the emergence of European primacy, forgetting that essentially all the contenders for leadership in pre-industrial economic development are in Eurasia. Consequently, before tackling the issue of the Great Divergence, it must be explained why other parts of the world had no chance of winning this competition. Jared Diamond has provided an environmental answer to this question.[3] Firstly, the Asian domesticated animal species (subsequently exported to Europe) were superior to those found in the Americas and Oceania. For example, wheat and barley are more nutritious than maize, while cows and horses have a greater capacity for work and are more versatile than llamas (the llama is the only large domesticated mammal native to the Americas, while Eurasia has 13; see Figure 1.1), and so on. Secondly, the Eurasian landmass has an east-west axis, unlike the north-south axis of the American landmass, which also becomes very narrow at Panama. Humans and their domesticated animals could expand much more easily in a latitudinal than longitudinal direction, for the simple reason that this did not involve changing climate zone. People on the move also take ideas with them, and there is evidence that innovations spread much more rapidly in ancient Eurasia than in the Americas, where even the more advanced cultures were separated from each other by daunting natural and environmental barriers.

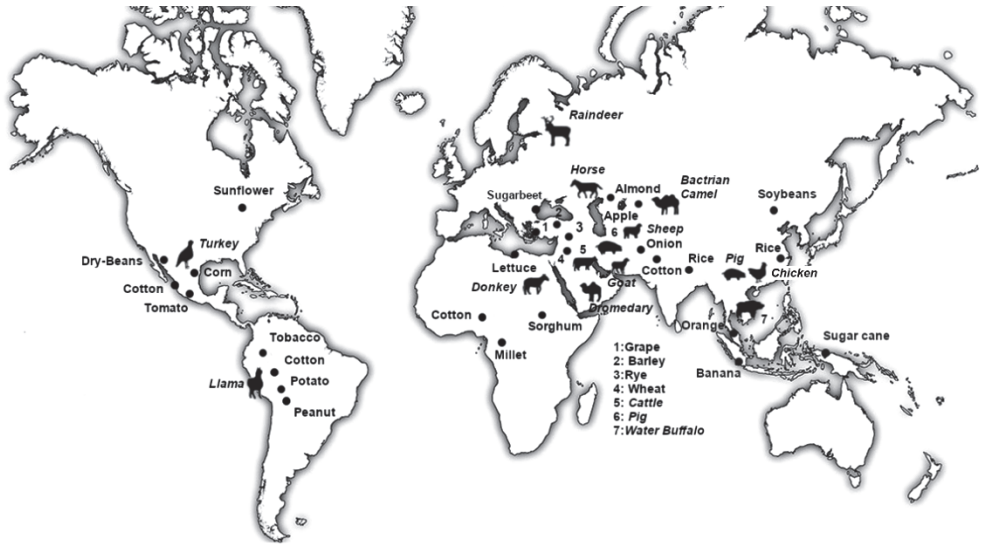
These factors were already present well before the first Europeans "discovered" the Americas and could exploit Europe's other technological and bacteriological advantages. In addition, these extra advantages derived mainly from the original environmental advantages enabling more efficient and productive agriculture, higher population density and states with more complex forms of organisation. Lastly, American societies suffered the effects of their delayed start in comparison with Eurasia. Humans originated in Africa and then migrated towards other continents in several waves, starting from the area around the Horn of Africa. One and a half million years ago, the first species of the genus *Homo* to move outwards from Africa, *Homo ergaster,* was already present in various areas of Eurasia, from Europe to China.

[2] J. Goody, *The Theft of History*, Cambridge, UK, 2006.

[3] J. Diamond, *Guns, Germs and Steel*, New York, 1997.

Homo sapiens was the first species of the genus *Homo* to possess modern anatomic traits, and the first great migration of this species out of Africa occurred 60-70,000 years ago; while archaeologists in the Middle East have found traces of even older settlements, these are probably the outcome of previous but less successful migrations. *Homo sapiens* was also the first human species to reach the Americas, but arrived there only 14-16,000 years ago, crossing the land bridge that existed during the last Ice Age between eastern Siberia and Alaska.[4] Starting from the far north-western area of the continent, it then took humans a further 2,000 years to complete the journey down to Patagonia at its southernmost tip.

Figure 1.1. – *Area of origin of the main domesticable species*



When Columbus arrived in 1492, in the whole of the Americas there were only two empires (Inca and Aztec) capable of mobilising resources on a large scale, whereas Eurasia had many states in greater or lesser conditions of advancement, including the world's most developed states. As observed by Goody, it is important firstly to highlight the organisational, institutional and cultural analogies within the vast expanse of Eurasia before focusing on the differences. Organisational and structural analogies are surely connected with the emergence of complex state structures, from the first city-state in Mesopotamia to the constitution of vast territorial empires. For example, the Roman Empire at its height encircled the Mediterranean, including much of Europe, the Middle East and North Africa, and the Chinese Han Empire (roughly contemporary to the Roman Empire) was similar in its territorial extension

[4] V. Calzolaio, T. Pievani, *Libertà di migrare*, Turin, 2016, pp. 23-45.

and population. However, the institutional analogies also relate to essential economic and social institutions, ranging from private property, [5] to inheritance systems, educational structures, and the family. For example, in Eurasia (but not elsewhere) all children received a share of the paternal inheritance, including daughters (as a dowry). This required the pursuit of complex and often endogamous matrimonial strategies to avoid excessive dispersion of inherited assets. These strategies were inherent in intensive exploitation of the land: the greater the value of the land (dependent on the possibility of producing crops), the more important it becomes to control its passage between generations. The following chapters will take up some of these themes, highlighting that the differences which obviously exist between institutions in different parts of Eurasia have been at various times evoked as possible factors of divergence. However, on this wider chronological and geographical scale it is actually the fundamentally analogous elements which are striking and which differentiate Europe and Asia from the other continents.

The comparison with sub-Saharan Africa is particularly significant, since it benefitted from the potential advantage of being the place where humans originated. Although separated from Eurasia by the desert and the Red Sea, sub-Saharan Africa is still much more easily connected to Eurasia than are the Americas. Nevertheless, Africa's involvement in the urban revolution of the Bronze Age occurred much later, and its cities were never as large, numerous, or capable of organising large territories as were their Eurasian counterparts. The reasons for this are not completely clear, but here again environmental factors seem to have played an important role. The absence of large cities capable of organising agricultural activities across a larger territory meant that cultivation methods remained those typical of itinerant and less productive agriculture. In such a context, where land had a lower value, some fundamental economic institutions, starting with private property and inheritance systems, did not develop to an extent comparable to those found in many parts of Eurasia. More generally, societies in sub-Saharan Africa remained less stratified and diversified in economic terms, and inheritance of rights over land (given its low value) had nowhere near the central importance seen in the agrarian societies of Europe and Asia. Consequently, even family institutions developed in very different ways from those of Eurasia; in particular, much less emphasis was placed on the pursuit of complex matrimonial strategies to maintain or improve the family's socio-economic status across the generations. Delays in the development of state institutions, limited protection of private property, and scarce economic stratification of society – with all that this involves – are possible long-term causes contributing to

[5] "Private property", especially if applied to land, should be understood as a set of rights over property, whose effective quantity and distribution varies according to the conditions; in the past, it was rare for private ownership of land to actually be "complete". Nonetheless it is still possible to distinguish between societies where property rights were relatively stronger or weaker. The history of Eurasia's most advanced civilisations is also characterised by the gradual consolidation of private property.

the relative underdevelopment that continues to afflict many nations of sub-Saharan Africa.

1.2. The structural features of agrarian economies

Eurasian agrarian societies were much more complex than their predecessors based on hunting and gathering, and this complexity only increased with the emergence and progressive consolidation of state structures. Nevertheless, even when agrarian societies were in a phase of full development, they were still much less complex and stratified than contemporary industrial or post-industrial societies. This was also because the vast majority of the population lived in small villages. Even in a highly urbanised region like Italy, no more than 20-25% of the total population lived in cities at the start of the 14th century (before the Black Death). On average, the urban population of Western Europe accounted for 6-8% of the total. Therefore, one reason for paying particular attention to the rural population is that it was much more numerous.

Another reason why agrarian societies were less complex is the limited division of labour, based (at least in the countryside) less on differences in ability than on the age and sex of the members of each family group. The fundamentally important skills and knowledge were common among all – or almost all – the population, who engaged in different activities according to the seasons. In fact, the lower level of complexity was associated with a more limited range of needs, and most of what was needed for consumption and production was made or reproduced locally: seed, livestock, implements and simple clothing. Only a few types of goods were imported from outside, including most metal tools and goods, salt and better-quality textiles, which were usually purchased from the market of the nearest city.

Labour productivity was generally low, and the traditional agrarian societies were capable of producing only a limited surplus beyond what they required for their own consumption and to sow their crops; this also placed a great constraint on the growth potential of the urban population. In addition to limiting the pace of economic development, this meant that the population was very much at the mercy of harvest fluctuations due to climatic and meteorological factors. In particular, long and intense spring rains could cause considerable damage to cereal harvests, causing them to fall well short of the minimum subsistence level. In general, agrarian societies had enough reserves to tolerate a year of "normal" hardship (according to one estimate, an average of one in four years saw poor harvests in the pre-industrial era). However, two or more consecutive years of poor harvests were usually enough to cause famine, which was always associated with a sharp reduction in births and, especially in the worst cases, with a notable increase in deaths. The fragility of agrarian economies could also be aggravated by a population increase, given the limited possibilities of achieving a rapid increase in output.

This "Malthusian" [6] interpretative model should not be applied rigidly, since it is known that Eurasian agrarian societies did not always survive merely at subsistence level, but were also able to enjoy lasting and progressive improvements in living conditions, at least in certain periods and areas. Nevertheless, it remains a very useful means of understanding the dynamics of the pre-industrial era.

The vulnerability of agrarian societies to crop failures poses the question of their resilience, meaning their capacity to deal with these crises. One fundamental aspect to underline is the capillary system of solidarity in villages, based on a dense fabric of family relationships. Matrimonial strategies were central to this system. As mentioned, European and Asian inheritance mechanisms assigned daughters an important share of the patrimony, thus necessitating "rational" management of marriages. The choice of marriage partners was usually the result of careful consideration by the respective families, and did not necessarily reflect the preferences of the young couple directly involved. Complex matrimonial alliances, and the kinship ties these created between lineages and across the generations, constituted the essential framework of a strong solidarity system which could be activated when needed, and this allowed agrarian societies to deal relatively successfully with crises. The exception was, of course, the most devastating crises, which in fact were distinguished not only by huge numbers of victims, but also by the collapse of social organisation within the community.

The importance of own consumption in agrarian societies has already been mentioned. Around 90% of produce was consumed where it was produced, either directly by the producer or else bartered in the village, since the use of money was highly unusual in rural communities. Only about 9% of total production was sold for money in the nearest city market. Just over 1% of produce travelled beyond the reference territory of a single city to become a part of the long-distance trade conducted by the merchant-capitalists residing in the largest cities.

In pre-industrial agrarian societies, cities were the location of trade and of the market, which was always subject to strict and thorough controls; it was what French historian Fernand Braudel famously called a "regulated market". [7] The cities also tended to concentrate the production of more complex manufactured goods, and they dispensed certain essential services to city-dwellers and those living in the surrounding

[6] According to the "classical" interpretation of the theories propounded by English economist Robert T. Malthus (1766-1834), in conditions of constant technology the population tends "naturally" to grow more rapidly than resources. Consequently, the balance between population and resources can be maintained in the mid- to long term only by periodic mortality crises (epidemics, famines and wars, all directly or indirectly triggered by a shortage of food and other resources). Only a significant innovation in agricultural technology can allow substantial population growth, but not a lasting improvement in living conditions (for instance, in terms of calories available per capita), since the (fragile) balance between population and resources will return in the long term to subsistence level due to the effects of population growth.

[7] F. Braudel, *Civilization and Capitalism 15th–18th Century*, Berkeley, 1992.

country area, since they hosted the principal magistratures, civil institutions (city governments, law courts) and ecclesiastical institutions (bishoprics). However, many of those living in cities were still engaged in rural activities to some extent, and there were very few exceptions to this rule. In the early 11th century, an anonymous writer from Pavia was astonished to observe the peculiar behaviour of Venetians, writing that they "neither ploughed, nor sowed, nor harvested grapes" (*illa gens non arat, non seminat, non vindemiat)*. In the following three centuries, Venice would progressively become the greatest commercial power in the Mediterranean, although it did not (yet) possess a large agricultural hinterland.

Exceptions like Venice were fundamentally important in the pre-industrial era, especially during the Middle Ages and at the dawn of the early modern era, due to their capacity for technological, institutional and behavioural innovation; the following chapters will return to this subject. They were the key nodes of the commercial and proto-financial capitalism that played a determining role in maintaining and strengthening both economic and cultural contacts between the different regions of the enormous Eurasian landmass.

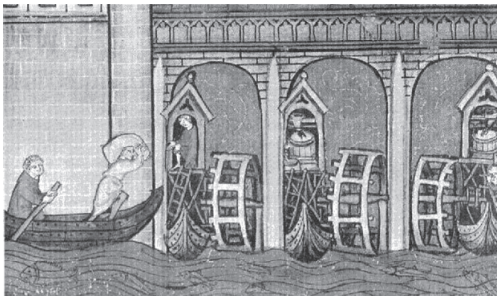
One last clarification is required. This brief description of agrarian societies has placed them inside a static framework. However, as already said, although the pace of change was very slow and by no means comparable with that of industrial societies, agrarian societies were not completely immobile. On the contrary, they were capable of notable progress, such as technological improvements. For example, the heavy plough was introduced into Europe in the 7th century, with important improvements between the 9th and 12th centuries, and it was mostly used in central and northern regions where soils were more difficult to work. The three-year crop rotation system took hold from the 8th century, [8] and iron agricultural implements became more common from the 12th century. These innovations enabled important increases in agricultural productivity. Another crucial innovation was the water mill, already known during the Roman Empire but widespread only from the 6th-7th centuries. Initially used for milling flour, over time the water mill proved as versatile as it was powerful, and was adapted for different applications, from fulling to iron-working. Many of these "European" innovations are also found in the more advanced regions of Asia, which is actually where some of them originated, confirming the ease with which men and ideas travelled across the Eurasian landmass. For example, the first form of heavy plough appears to have been invented in China between the 1st and 2nd centuries CE, after which its use spread towards the West.

Agrarian societies were therefore capable of making progress, but the rate of progress and of social and economic changes was generally very slow and almost

[8] This system divided the land into three parts. One part was used to grow cereals, which gave high yields but quickly depleted the soil of nutrients; another part was left to rest (fallow); and a third part was used for pulses, helping to re-establish the fertility of the soil. Crop rotation was practised each year, so that cereals were grown on the same land every three years.

imperceptible unless an exceptional situation occurred; the principal event of this kind was the accelerated phase of transformation of social and economic structures set in motion by the Black Death.

Figure 1.2. – *Technological innovation in the Middle Ages*



Water mill

Heavy plough

Bibliography

Braudel F., *Civilisation matérielle, économie et capitalisme, XV^e^-XVIII^e^ siècle*, Paris, 1967 (English ed. *Civilization and Capitalism 15th–18th Century*, Berkeley, 1992).

Calzolaio V., Pievani T., *Libertà di migrare*, Torino, 2016.

Cattini M., *La genesi della società contemporanea europea*, Modena, 1994.

Chaunu P., *Histoire, science sociale; la durée, l'espace et l'homme à l'époque moderne,* Paris, 1974.

Cipolla C.M., *Before the Industrial Revolution: European Society and Economy, 1000-1700*, London, 1993.

Diamond J., *Guns, Germs and Steel*, New York, 1997.

Goody J., *The Theft of History*, Cambridge, UK, 2006.

Livi Bacci M., *A Concise History of World Population,* Oxford, 2017.

Malanima P., *Pre-Modern European Economy*, Leiden, 2009.