Chapter 1

THE STRUCTURAL CHARACTERISTICS OF PREINDUSTRIAL ECONOMIES

SUMMARY: 1.1. From the Neolithic Revolution to the Bronze Age urban revolution. – 1.2. The structural features of agrarian economies. – 1.3. Late-mediaeval economies and the impact of the Black Death. – Bibliography.

In order to understand pre-industrial economies, we must imagine a radically different world from the one we know today. To paraphrase economic historian Carlo M. Cipolla, an Englishman in the mid-18th century had more in common with a Roman contemporary of Julius Caesar than with one of his own great-grandchildren (who had, however, no idea about personal computers or mobile telephones).[1] Cipolla intended to illustrate the rates of growth and the pace of change in economic and social structures: not completely static, but certainly very slow before the Industrial Revolution, and increasingly rapid, at times even frenetic, thereafter. To a great extent, the change of pace derives from the transformation of prevalently agrarian economies into industrial economies. And yet, the Industrial Revolution did not arise from a void: some areas (it is a matter of debate as to how many), mainly in Europe, had already begun to accelerate centuries before this, differentiating themselves from the rest of the world and launching what is now commonly known as the "Great Divergence". This chapter aims to briefly describe the structural characteristics of pre-industrial agrarian economies and their semi-immobility, which only a wide-ranging trauma could shake (the Black Death of the 14th century is the best example). The two following chapters will tackle the timing and development of this divergence: firstly between continents, and then between northern and southern Europe.

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

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

lived in groups of hunter-gatherers, finding food provided spontaneously by nature. The groups were limited in size and not very numerous, given that the global population is estimated at no more than six million. Then the situation changed: in different parts of the world (Near East, China, Central South America) and independently of each other, some of these groups settled down, built villages and began to cultivate the land. In other areas (Northeast 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 along 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 6000 and 3500 BCE. In general, the autonomous transition to agriculture occurred in areas where there was a relative abundance of wild species of both plants and animals suitable for domestication.

This was the first "agricultural revolution" in history, and also marks the first acceleration in population growth. At the start of the Common Era, the world population had increased by over 40 times and stood at 250 million. The growth rate was very slow by contemporary standards (less than 0.04% per year), although much higher than was typical in pre-agrarian societies. But what about the per capita availability of resources, or living conditions? There is more doubt about this kind of improvement, 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 started to cultivate the land and to create permanent settlements when forced to do so by demographic pressure. The assumption is that they already possessed some key skills derived from simply observing nature; for example, how to propagate plants by placing seeds in the ground. Therefore, agriculture was not such a momentous discovery, and living conditions actually worsened in many ways. The human diet became increasingly dependent on cereals and hence impoverished, as appears from the reduced stature of skeletal remains. Diseases became more numerous and more frequent due to increased population density and close proximity with domesticated animals and their parasites. Lastly, peasants 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, and could coordinate labour and the use of resources in ways unimaginable in a society of hunters and gatherers. On the other hand, this involved a greater degree of social-economic inequality. Diversification of tasks and the development of a more complex social structure allowed the accumulation of skills and

knowledge, whose transmission from one generation to the next was facilitated by the invention of writing (circa 3200 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 3000 BCE. This is associated with a sharp increase in economic and social complexity, also because the cities were able to organise activities across a vast surrounding area. At the same time, the first states began to form, with characteristics – according to authoritative 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, which meant the emergence of new aspirations, providing an impetus to consumption, technological innovation and the general advancement of knowledge.

In comparison with the Neolithic Revolution, the urban revolution was much more local, and initially limited to Europe and Asia. This was essentially the start of a sort of proto-divergence between Eurasia (not surprisingly 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 supremacy, forgetting that essentially all contenders for the leading position in pre-industrial economic development are in Eurasia. Therefore, before tackling the issue of the Great Divergence, it must be explained why other parts of the world had no chance of achieving supremacy. Jared Diamond has recently provided an environmental answer.[3] According to this theory, the Asian species of domesticated plants and animals (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), and so on. In addition, the Eurasian landmass has an east-west axis, unlike the north-south axis of the American landmass, which is also extremely narrow at the Isthmus of Panama. Humans and their domesticated animals could expand much more easily along latitude than longitude, 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 innova-

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

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

tions 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. These derived mainly from the original environmental advantages, enabling more efficient and productive agriculture together with a higher population density and states with a more complex form of organisation. Lastly, American societies suffered (in comparison with Eurasia) the effects of a delayed start: as they moved outwards from Africa and migrated to other continents, humans reached the American continent approximately 14,000 years ago, and took a further 2,000 years to complete the journey from their entry point in the north (Alaska) down as far as Patagonia in the south.

At the arrival of Columbus (1492), there were only two American empires (Inca and Aztec) capable of mobilising resources on a large scale, whereas Eurasia had many states in more or less advanced conditions, including the world's most developed states. As observed by Goody, we must highlight the organisational, institutional and cultural analogies within the vast expanse of Eurasia before indicating the differences. Organisational and structural analogies are naturally connected with the emergence of complex state structures; for example, the Roman Empire at its height encircled the Mediterranean, including much of Europe, the Middle East and North Africa, and the Chinese Empire was even larger. However, the analogies are also related to essential economic and family institutions, ranging from private property, 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 (through their 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 following chapters will take up some of these themes, highlighting that although differences between the institutions in different parts of Eurasia have been at various times evoked as possible factors of divergence, on this wider chronological and geographical scale it is actually the fundamental elements of analogy which are striking and which differentiate the two continents from all others.

Sub-Saharan Africa, where the first hominids appeared and thence migrated worldwide, is separated from Eurasia by the desert and by the Red Sea, but is nevertheless still much easier to reach than the American continent. Africa's urban revolution took place much later, and its cities were

never as large, numerous and capable of organising ample territories as their Eurasian counterparts (here again, environmental factors seem to have been an important obstacle). The prevailing methods of cultivation, typical of an itinerant and less productive agriculture, were accompanied by a less diversified society, in which the inheritance of land rights had nothing like the central importance it had in the agrarian societies of Europe and Asia. Consequently, even the family structures were very different from those of Eurasia, and placed much less emphasis on the pursuit of complex matrimonial strategies.

1.2. The structural features of agrarian economies

Eurasian agrarian societies were much more complex than their predecessors based on hunting and gathering, but were also 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 was about 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 due to the limited division of labour, based (at least in the countryside) less on differences in ability than on the age and gender of the members of each family group. The fundamentally important skills and knowledge were common among all or almost all of the population, engaged in different activities according to the seasons. 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 on a local basis: seed, livestock, implements and simple clothing. Only a few types of goods were imported from outside by acquiring supplies marketed in the nearest city: most metal tools and goods, salt and higher quality textiles.

Productivity was generally low, and the traditional agrarian societies were capable of producing only a limited surplus above what was needed for immediate subsistence and to constitute reserves of seed to sow the next crops (this also placed a great constraint on the growth potential of the urban population). In addition to limiting 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 below the minimum subsistence level. In general,

agrarian societies were able to tolerate a year of "normal" hardship by using their available reserves (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 a famine, always associated with a net reduction in births and, especially in the worst cases, a notable increase in death rates. The fragility of agrarian economies could be aggravated by a population increase, given the limited possibilities of achieving a rapid increase in output. This "Malthusian" [4] interpretative model should not be rigidly applied, since it is known that Eurasian agrarian societies did not always survive merely at subsistence level, but were able to enjoy lasting and progressive improvements in living conditions, at least in certain periods and areas. Nevertheless, it remains an extremely useful means of understanding the dynamics of the pre-industrial era.

The vulnerability of agrarian societies to crop failure poses the question of their resilience, meaning their capacity to deal with these crises. One fundamental aspect to underline is the capillary solidarity system in villages, based on a dense fabric of various degrees of family ties. Matrimonial strategies were central to this system. European and Asian inheritance mechanisms assigned daughters an important share of the patrimony, thus necessitating "rational" management of marriages. The choice of marriage partner 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 which these created between lineages and across the generations, constituted the essential framework of a strong solidarity system, which could be activated when needed and allowed agrarian societies to deal relatively successfully with these crises. The exception was, of course, the most terrible disasters, which were devastating not only in terms of the huge numbers of victims, but even more so in terms of the consequent collapse of social organisation within the community.

The importance of self-consumption in agrarian societies has already been mentioned. Around 90% of produce was consumed where it was

[4] 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 under the effects of population growth itself.

produced, either directly by the producer or else bartered in the village (the use of money was highly unusual in rural communities). Only about 9% of total production was sold for money in the market of the nearest city. 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, the city was the site of trade and of the market. This latter was always subject to strict and thorough controls; it was what French historian Fernand Braudel famously called a "regulated market". The cities also tended to concentrate the production of the more complex manufactured goods and dispensed certain essential services to urban residents and those of the surrounding country area, since they hosted the principal magistratures, civil institutions (city government, law court) and ecclesiastical institutions (bishoprics). However, many city residents were still engaged in rural activities, at least to a partial extent. There were very few exceptions to this rule. At the start of the 14th century, Florentine banker and chronicler Giovanni Villani was astonished at the peculiar behaviour of Venetians, writing that they "did not plough, nor sow, nor harvest grapes" (*illa gens non arat, non seminat, non vindemiat*); although Venice was the greatest commercial power in the Mediterranean, it did not yet possess a large agricultural hinterland.

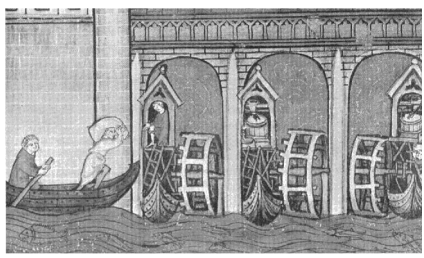
Exceptions like Venice were fundamentally important in the pre-industrial era, especially during the Middle Ages and at the dawn of the early modern era, due to their capacity for technological, institutional and behavioural innovation, and the following chapters will return to this subject. They were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

One last explanation 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 extremely slow and not at all comparable with that of industrial societies, agrarian societies were by no means immobile. On the contrary, they were capable of notable progress, such as technological improvements. The heavy plough was introduced into Europe in the 7th century, with important improvements made between the 9th and 12th centuries, and 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[5] and iron agricultur-

[5] This system divided the land into three parts. One was used to grow cereals, which

al implements spread 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 cloth to iron-working. Most of these "European" innovations are also found in the more advanced regions of Asia, which is actually where many 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.

Figure 1.1. Technological innovation in the Middle Ages



Water wheel

Heavy plough

1.3. Late-mediaeval economies and the impact of the Black Death

Agrarian societies were therefore capable of making progress, but the times required for progress and for social and economic changes were generally slow and almost imperceptible, unless there was an exceptional occurrence. Here, the principal event was the Black Death, which triggered an accelerated phase of transformation of social and economic structures.

The plague was well known in the ancient world, but had disappeared from the Mediterranean and Europe in the 8th century, retreating to certain specific areas of Asia, such as the Himalayan area, where it remained endemic. According to the prevalent theory, the plague's return to Europe is directly connected with the formation of the Mongol Empire, one of the

gave high yields but quickly depleted the soil of nutrients; one was left to rest (fallow); and one 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.

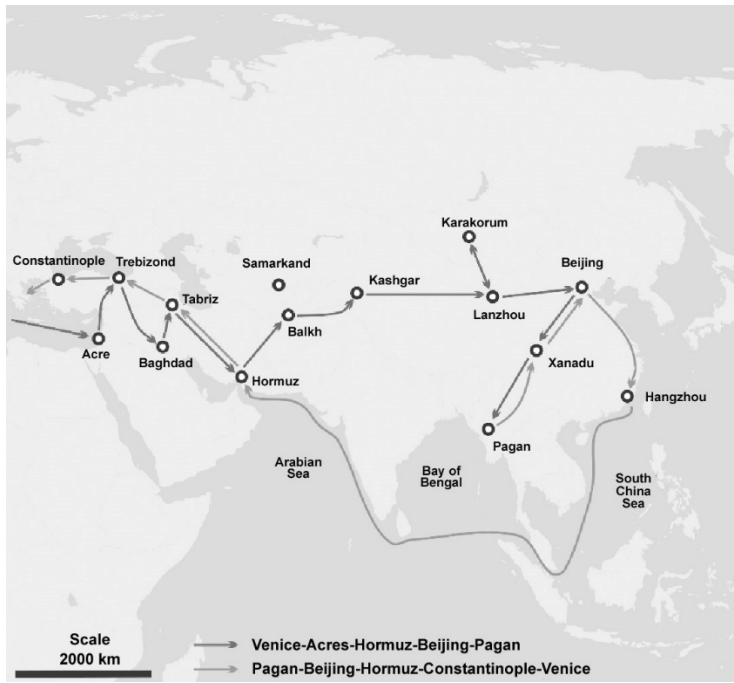
major events in Eurasia during the last centuries of the Middle Ages. From around 1206, the year Temüjin succeeded in uniting all the tribes under his leadership and had himself proclaimed as Genghis Khan ("universal chief"), the advance of the Mongols impacted first on Central Asia, then continued under his successors towards China and Eastern Europe. After many military campaigns, the Mongols finally succeeded in subjugating the whole of China in 1279 under the dominion of Kublai Khan, founder of the Yuan dynasty. In Asia, they overran Tibet, Korea and vast areas of the Indian sub-continent, while in Europe they advanced towards Poland and Hungary after the conquest of Russia, devastating vast territories and posing a constant threat to the entire continent for decades.

The Mongol Empire was the greatest territorial empire the world had ever seen, and its formation was a fundamentally important event in Eurasian history. Not only did it overturn pre-existing states and political equilibria, but its chief importance is that it improved communications and favoured the exchange of goods and ideas across an enormous area. The Mongols were able to create an efficient communications network within their vast Empire by strengthening and integrating the existent road system and fully reviving the ancient Silk Road, which had already linked China and India with the Mediterranean area during the Roman Empire. This was Eurasia's principal trade route before the ocean shipping routes were established. In 1271, a young Venetian merchant called Marco Polo set out on a journey along the Silk Road that would take him as far as the city of Xanadu and the court of Kublai Khan.

Marco Polo's adventures represent the movement of men and goods which flourished for over a century, due to the relative stability and security provided by the Mongol Empire (the period is also known as *Pax Mongolica*). Unfortunately, just as men and goods travelled the trade routes, so did pathogens. It was precisely the improved efficiency of the road networks under the Mongols which allowed the plague to spread from the Himalayan region, first (in the early 1330s) infecting Central Asia, and probably part of China, before reaching the Middle East and Black Sea in 1346. In the Crimea, the plague came into contact with the Republic of Genoa, one of Europe's greatest economic powers, which like Venice had built up an articulated commercial empire in the Mediterranean area. The Genoese colony in Kaffa was infected by the Mongol army besieging the city. Genoese galleys fleeing from the epidemic in 1347 took the plague firstly to Constantinople, then Europe's largest city, to different regions of Italy, and also perhaps as far as Marseille in France. In 1348 the Black Death spread from these areas to the rest of Italy, to central and southern France, northern Spain, southern England, the Balkans, the Middle East

and much of North Africa (from Egypt to Algeria). The plague continued its spread until 1352 or 1353, affecting the whole of Europe and the Mediterranean area, except perhaps for some very restricted areas, especially those in the extreme north.

Figure 1.2. Marco Polo's travels along the Silk Road



In Europe and the Mediterranean area alone, the Black Death is estimated to have killed at least 50 million people. This was undoubtedly one of history's worst pandemics, eliminating in just a few years 33 to 60% of the entire European population. According to contemporary chroniclers, the death rates in Italy were 60% in Florence and Siena, 50% in Orvieto and 45% in Prato and Bologna. Estimates for the entire peninsula range from a minimum of 30% to a maximum of 50-60%, and are essentially the same as the European average.

The Black Death caught Europe largely unprepared. Despite their considerable wealth and cultural development, not even the continent's most advanced areas, with Italy in the lead, could do a great deal to control the disease and limit mortality. The plague's arrival in Europe and the fact that it subsequently became endemic led to a process of institutional adapta-

tion and consolidation of public health services in which the Italian merchant republics led the way. For example, the first permanent lazaret (or plague hospital) was built in 1423 on an island in the Venetian Lagoon. Here it must be emphasised that the plague caused a shock to the existing social and economic structures, accelerating the rate of change, and some interpretations see it as constituting Europe's first specific advantage (and therefore divergence) factor in comparison with Asia.

In effect, the damage to the European economy during the epidemic and in the period immediately afterwards, caused by the breakdown of production and trade, huge losses of life and human capital, and the collapse of the overall product, were amply compensated by a large number of "beneficial" effects. In general, the survivors enjoyed a sharp "re-adjustment" of the relationship between the population and natural resources, which had become obviously precarious by the start of the 14th century, as shown by some of the worst famines in European history: in particular, the "Great Hunger" of 1315-1317.[6] Suddenly, more land became available than could be cultivated. It was thus possible to reorganise agricultural production more efficiently, abandoning marginal lands and redesigning the countryside and even the settlement patterns, although we now know that the reorganisation of settlements and consequent abandonment of many villages had already begun during the decades prior to the Black Death. Very recent research has demonstrated how the plague brought about a vast redistribution of wealth, resulting in greater equality; this is the only instance of a substantial and generalised reduction in economic inequality recorded during the entire Middle Ages or early modern era.[7]

On the whole, the new balance between the population and resources (and the more equal distribution of these resources) allowed large strata of the population to achieve higher living standards. This was also helped by the fact that city workers could obtain higher wages, allowing them to stay above subsistence level in the long term.

The higher living standards in Europe following the Black Death were consolidated by the plague's permanence in the continent, and may have constituted a divergence factor compared with China, "unlucky" enough to have suffered less from the plague also thanks to its cleaner and less crowded cities. The paradox is that one type of advantage (the quality of the urban environment and public health levels) may actually constitute a relative disad-

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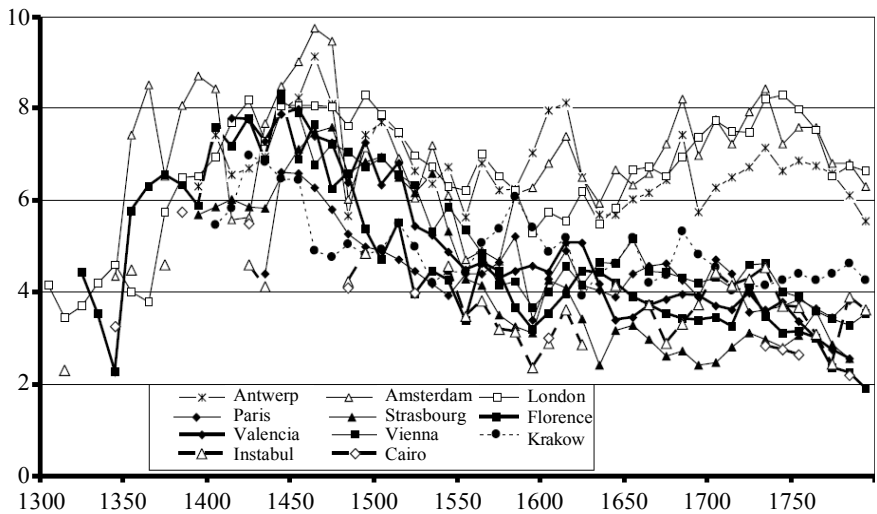
[6] Italy was the only area of Europe spared by the famine, but was severely affected by two others in 1328-1330 and 1346-1347.

[7] G. Alfani, T. Murphy, *Plague and Lethal Epidemics in the Pre-Industrial World*, in *Journal of Economic History*, 77(1), 2017, pp. 314-343.

vantage (less capacity to accumulate surplus and to raise living standards), although this sort of paradox is not infrequent during the course of history. For instance, following the establishment of the Atlantic routes, the states (like Venice and Genoa) which had benefitted during the Middle Ages from their central position in the Mediterranean area then found themselves imprisoned within the very same area, while other areas formerly excluded from the major commercial routes could now take full advantage of the new opportunities.

Figure 1.3. Impact of the Black Death on real wages



Source: S. Pamuk, "The Black Death and the Origins of the 'Great Divergence' across Europe, 1300-1600", in *European Review of Economic History*, 2007, 11(3), p. 297. The graph shows real wages of unskilled workers converted to indexes.

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