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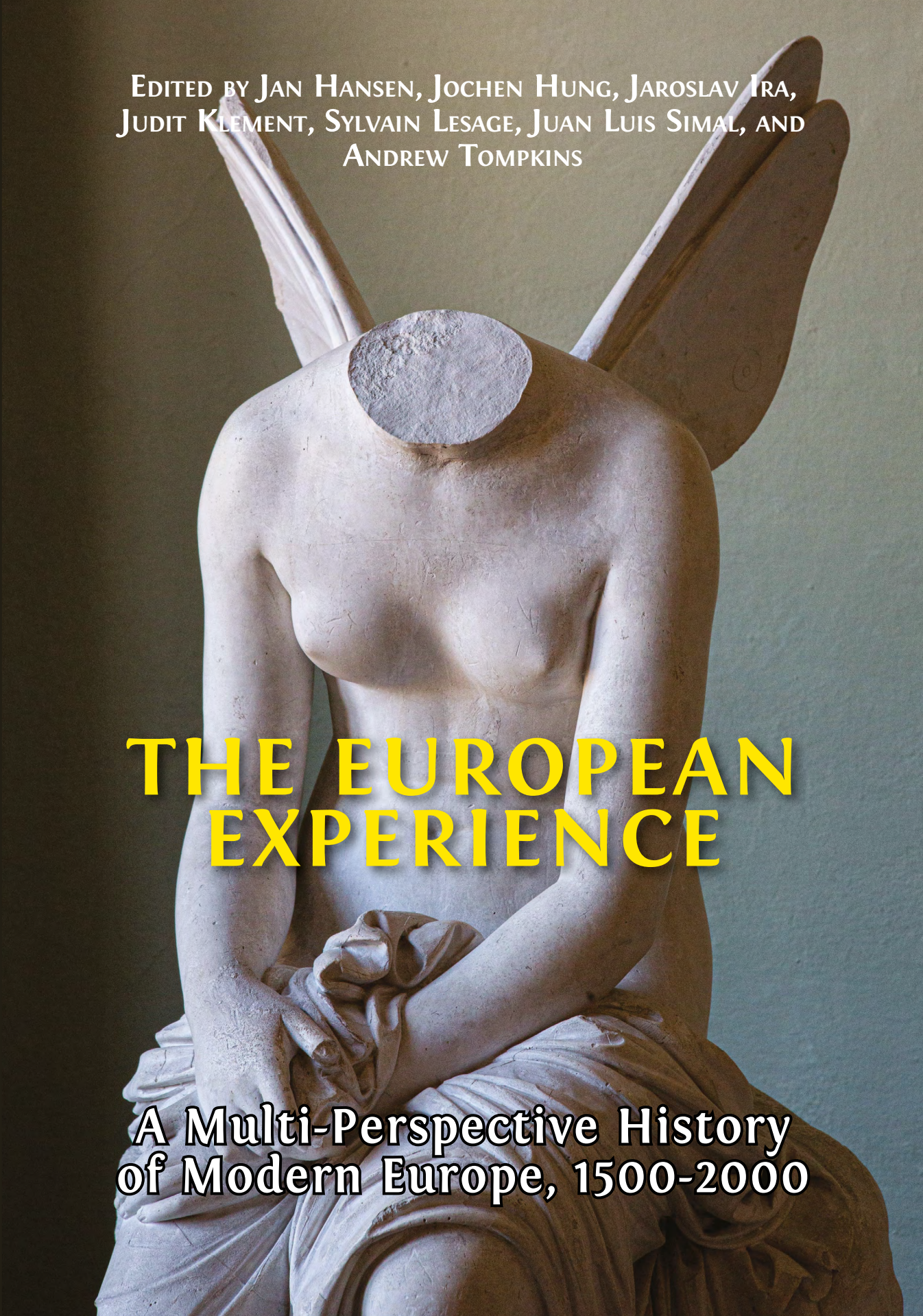

The European Experience

A Multi-Perspective History of Modern Europe, 1500-2000

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2.1.2 Demographic Change in Modern History (ca. 1800–1900)

Károly Halmos, Gábor Koloh, Rick J. Mourits, and Jakub Rákosník

Introduction

The population changes of the nineteenth century have been studied exhaustively by historians and demographers alike. States started to govern populations in a biopolitical sense, meaning that they took responsibility for the wellbeing of their subjects, for which they began gathering statistics on a large and increasingly comprehensive scale. Statistical sources also recorded the large and rapid demographic changes to which Europe was subjected over the course of the nineteenth century. The European population grew rapidly as lives lengthened, birth rates decreased, and labour markets changed dramatically. In general, these trends were very similar across Europe, however, the timing and underlying reasons for these demographic changes differed between countries.

In the section on new sources, we outline the historical background against which historical population data was gathered and warn against the uncritical study of sources. In the section on demographic transition, we explore why scholars use this term to describe rapid population growth and the underlying dynamics of demographic change. After that, in the section on industrialisation and demographic change, we show how transforming labour markets initially had a negative effect on daily living conditions, but were also a driving force behind improvements in the quality of life at the end of the nineteenth century.

New Sources

The nineteenth century saw a surge in the amount of information available on population dynamics. Many countries in Europe started to register their

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inhabitants, so that they could keep track of their citizens. These developments started at rather different times, however, and the quality of the data produced also varied. The censuses, civil registries, and population registers (see Table 1 for a description) that were introduced in the nineteenth century were a vast improvement on earlier administration by churches and cities. Information was now more standardised, subject to controls, and better stored. To this day these systems are still being used to monitor who lives in a country, and have only grown more sophisticated, so that states can register their taxpayers, property owners, students, patients, drivers, welfare recipients, and so on.

European administrative systems were made with specific goals in mind. Before the nineteenth century, the registration of people was often a task performed by churches. Over the course of the nineteenth and twentieth centuries this task was taken up by the centralising state (be it a nation-state or an empire) that wished to register its citizens. The first state-run administrative system in Europe started in 1792 when the civil registry—records of birth, marriages, and deaths—was implemented in France for military conscription and taxation. Other countries followed suit and implemented their own registration systems, of which the census was by far the most common. Over time, the ability of states to register and measure their citizens' lives grew, resulting in more specialised registers. Besides basic demographic information on the population, militia registers, occupational censuses, housing surveys, nationwide taxation tables, and cause-of-death registrations became available on a nation-wide scale.

State-run registrations were by no means a European invention. Long before nation-states started to form in Europe, there were already established states with civil administrations in China, Japan, and Korea. What made the registration systems in nineteenth-century Europe different was that all inhabitants of a country were registered; not just heads of households or the affluent. One of the main drivers behind the registration of *all* citizens was the strive to improve societies and make them quantifiable. This was not only a moral pursuit, but also an effort to build strong nations by making the most of society in military and economic terms. The trend fully blossomed in the second half of the nineteenth century, when the rise of statistics coincided with the concerns of medical professionals and social scholars. Hygienic movements tried to improve living conditions, while economists and other social scholars were very concerned with the state of the population. During this time, the civil administration was increasingly used to address economic and public health issues, rather than military purposes.

The new records were used and accepted by the population, since civil registration gave them rights, formalised family relations, and regulated

inheritance claims. But administrative records were not neutral instruments, as they were also used for nation-building and enforcing social structures. Registration indicated that the state recognised the existence of individuals and wanted to improve or regulate their daily lives, yet these documents were shaped by a very specific group of men in terms of affluence and social standing, meaning that recognition followed normative patterns that were dominant at the time. For example, forms of human bondage or slavery in the colonies excluded certain groups of people from registration, enabling structural dehumanisation. There was generally little interest in indexing female occupations after marriage, since married women were not supposed to work in the public sphere, nor was there much attention to the agrarian division of labour from administrations that were mainly interested in processes of industrialisation. From our contemporary perspective we see this lack of registration as a form of marginalisation, since (aspects of) lives remained structurally unknown and out of view. In order to make accurate (re) constructions of the past, it is therefore imperative to understand the historical perspectives and concomitant biases that are ingrained in each form of civil registration.

Table 1: Overview of the major demographic sources.

Main data sources	Type of information	Description
Conscription records & prison records	Height	Contain height measurements and other socio-economic characteristics of military recruits or inmates.
Census records	Snapshots of the population	Census records provide a periodical snapshot of households and the persons that live in them at the moment of enquiry by the state. Information on household members is often provided by the head of the household.
Conscriptio animarum	Snapshots of population of a church	Periodical snapshots of religious communities provided by the Roman Catholic Church, roughly equivalent to the census. Other denominations used different names for it.
Civil certificates	Continuous registration of births, marriages, and deaths	Civil certificates provide continuous registration of births, marriages, and deaths by the state. However, people themselves are not followed over time and matching strategies are necessary to connect them manually or digitally.

Parish registers	Continuous registration of births, marriages, and deaths	Parish registers provide continuous registration of births, marriages, and deaths by the church or religious denomination. They are very similar to civil certificates, but are generally less standardised and often already existed before 1800.
Population registers	Continuous registration of households	Persons are followed over the course of their life by the state with continuously updated information and references of moves from one place to another. Persons are followed from birth to death, so that life courses can easily be reconstructed.
Tax registers	Income and/or wealth	Year-by-year conscription of taxpayers (who can be heads of families or households); the measure of their estates and duties. Informative on economic status of the local population.
Early sociological research	Inequality and/or social stratification	Empirically-focused research on particular social problems, such as conditions of industrial workers or poverty.

Demographic Transition

In 1798, the British reverend and demographer Robert Thomas Malthus (1766–1834) published the first edition of his essay on population. Malthus believed that population growth was close to stationary, as limited food supplies kept populations in check. This mechanism has become known as the Malthusian trap. Ironically, Malthus's essay signalled the end of an old demographic regime: when Malthus published the different versions of 'An Essay on the Principle of Population', the relationship between population growth and food scarcity had started to vanish. This process began with the so-called agricultural and commercial revolution of earlier times, but gained speed over the course of the nineteenth century with the massive and ongoing use of fossil fuels leading to increasing returns on human labour.

The world population doubled in size over the course of the nineteenth century. The estimated world population reached the first billion around 1800 and more than one fifth of that figure lived in Europe. Around a century later, immediately after the First World War, the estimated world population was approaching the second billion, with Europe accounting for a quarter of that number. The speed and sheer size of the growth was unprecedented: the previous doubling of the world population had taken roughly three centuries.

These numbers are even more impressive if we consider that people living at the end of the nineteenth century were physically better off than their predecessors a hundred years before. Europe had broken free of the Malthusian trap.

Not only did populations grow, but human life courses also started to change. Some demographers use the term 'demographic transition' to designate this change. The key to this mechanism would be the transition from a population regime with high fertility and high mortality to a population regime with low fertility and low mortality.

In its most stringent form, the demographic transition model divides the mechanism into four phases:

- The first phase is a steady state where birth and mortality rates are high. This phase has been described in the chapter on demographic change in the early modern period.
- In the second phase the mortality rate diminishes while the birth rate remains high, resulting in a growing gap between mortality and fertility rates.
- During the third phase the gap between mortality and birth rates decreases—after an initial lag, the birth rate starts diminishing too.
- The fourth phase is when both rates get relatively close to each other again and enter a new, steady state of low birth and mortality rates. This is not necessarily the end of demographic change, as will be discussed in the chapter on demographic change in the twentieth century.

The demographic transition model was expected to provide a comprehensive explanation of the changes that took place in Europe in the nineteenth century and also occurred elsewhere in the twentieth century. However, in the last few decades, the determinism of the theory has been heavily criticised by social historians, historical anthropologists, and demographers alike, because the timing, duration, order, and underlying reasons for the different phases of the demographic transition differed between countries. Moreover, the model is very descriptive and does not explain when or why people decided to have fewer children. It might very well be possible that there was not a single demographic transition that spread through Europe, but a myriad of demographic transitions with slightly different causes. Therefore, the demographic transition model can at best be seen as a descriptive mechanism, merely stating that at aggregate levels there is an association between decreases in mortality and fertility.

Fig. 1: Thomas Annan, *The Slums of Glasgow* (1868–1877), Rijksmuseum Amsterdam, https://www.rijksmuseum.nl/en/collection/RP-F-F80005.

Decreasing Mortality and Fertility Rates

Death was a much more common occurrence in everyday life for those born in 1800. Mortality was especially high for newborns. Infectious diseases and dietary infections due to contaminated food and water often proved fatal for the youngest in society. Children who survived the first year of life were still not out of harm's way, as infection with diphtheria, measles, and smallpox in the first years of life could be fatal. Infectious diseases also caused high mortality levels among adults. Malnutrition and a lack of knowledge about (preventive) medicine made people susceptible to infection with cholera, diarrhoeal diseases, and tuberculosis. These infectious diseases could be lethal for any weakened adult and added to the wear and tear on the human body.

Yet, over the course of the nineteenth century, the impact of epidemics diminished. With the improvement of hygiene, living conditions, preventive medicine, and public health, infectious diseases began to lose ground at the end of the nineteenth century. The developing understanding of the role of hygiene had an especially significant impact on the trends of infant and child mortality. The timing and pace of this decline in mortality varied by country. In Sweden for example, mortality decreased throughout the nineteenth century, whereas in Switzerland or the Netherlands it took until the second half of the century before mortality rates began to drop.

Decreasing mortality was most noticeable for the youngest in society, and it was the decline in infant and child mortality that generated significant population growth, even in countries where both mortality and fertility

declined relatively rapidly. Those who had already survived into adulthood now also had better life prospects. Meanwhile, the economic boom in the second half of the century created a favourable opportunity for agricultural areas in Eastern Europe. Increases in production also brought positive changes in the distribution of food, as steam hauling revolutionised transportation. An improvement in living conditions was brought about by a more balanced diet and increasing knowledge of preventive medicine. However, these improvements in living standards were fragile and progressed in leaps and bounds, amid setbacks related to agricultural crises and outbreaks of infectious disease.

The trend in fertility is more complex than the trend in mortality. Demographic transition theory does not consider regional variations. However, throughout the nineteenth century, the total fertility rate (the average number of children born to women aged between fifteen and forty-nine) varied significantly between different parts of the continent. Central European values, for example, remained below Eastern European values throughout the century, but were higher than those of Western Europe. The decline in fertility in Western European states began as early as the 1870s and 1880s, while in Central Europe the same trend started around 1900. Yet, territorial differences cannot simply be explained by the west-east slope of economic and cultural processes.

On both sides of the divide, we can see much more differentiated processes. The fertility transition started first in anti-traditionalist, revolutionary countries, and was thereafter widely adopted across Europe, reaching traditionalist, religious countries last. In Hungary, for example, the decline in fertility started almost at the same time as in Western Europe—even before the decrease in mortality in Hungary. It was somewhat later than France and the US, the pioneers in the fertility transition, but much earlier than religiously conservative countries like the Netherlands, where fertility decreased rather slowly and remained relatively high well into the twentieth century. The varied timing of fertility decline across Europe is at odds with demographic transition theory, demonstrating that the mechanisms underlying demographic modernisation differed across the continent.

The issue becomes even more complicated when we look at differences within countries. Research has shown conscious and significant birth control in some regions since the end of the eighteenth century. If we stay with the Hungarian example, the one-child system of the Ormánság in South Transdanubia is clearly such a phenomenon. Social stratification and rural-urban differences were probably a more important indicator for the fall of birth rates than the country of origin. In urban contexts, the upper and middle

classes usually limited their number of offspring earlier than labouring classes. In the countryside, farmers, farm labourers, and peasants generally continued to have large families and only started decreasing their family size during the twentieth century. In other words, the demographic transition might describe an association between decreasing mortality and fertility, but hides much variation between countries, regions, and individuals.

Industrialisation and Demographic Change

The growth of the population was in its early phase correlated with increasing poverty and pauperism that determined the physical conditions of the people. According to estimations based on military conscriptions, there was a decrease in the average height of recruits during the first half of the nineteenth century, a phenomenon carried by the wave of the Industrial Revolution and which went hand in hand with accelerating population growth. Somehow, matters had to get worse before living conditions for the population started improving. At the time, this was considered to be the heavy price of the Industrial Revolution, which the German philosopher and activist Friedrich Engels (1820–1895) famously described in 1845, writing that "[t]he condition of the working-class [...] is the highest and most unconcealed pinnacle of the social misery existing in our day."

The Industrial Revolution of the nineteenth century had a similarly stimulative impact on population growth in Europe, as did proto-industrialisation in the seventeenth and eighteenth centuries. Wage work provided resources for an increasing number of households and drew ever-increasing scores of people to the city. Urbanisation meant the relocation of large numbers of people to hygienically unsatisfactory conditions. Cities suffered from overcrowding and pollution, had limited water supplies, and were ideal vectors for infectious diseases. These poor living circumstances negatively affected the health of city-dwellers. Inhabitants of cities were shorter than their counterparts from rural regions or previous generations. This situation has been best documented for England. For example, Engels noted that "diseases of the spine amongst people employed in factories presented themselves very frequently," to the extent that he had "seldom traversed Manchester without meeting three or four [people] suffering from [...] distortions of the spinal columns and legs." Statistics paint a similar picture: London craftsmen had shrunk from an average height of 170 cm in 1750 to 163 cm in 1840. Similarly, the infant mortality rate rose during the first half of the nineteenth century in British industrial cities, despite its slow decline during the second half of the eighteenth century. This confirms the claims of older historiography that the standards of living stagnated in the first half of the nineteenth century.

In the long run, however, the growth of per capita income during the nineteenth century undoubtedly had a positive effect on the wellbeing of the population. In one century, the mean income almost tripled. Higher personal income improved the quality of life, as it made better housing, nutrition, and hygiene affordable. The wheels of the demographic transition were set in motion, as households were enabled to reach a desirable standard of living, improving their own survival chances and those of their offspring. Simultaneously, the income of governments and public authorities grew, allowing administrations to provide much-needed improvements in public hygiene by investing in sewerage and water pipes. Industrialisation had introduced new social and health problems, but it also presented the economic means to solve them.

However, the demographic transition cannot be explained by the growth of bustling, industrial cities alone. Slower, longer, less visible, and equally important was the revolution in agriculture that started in the eighteenth century. Rapidly growing populations were fed by agricultural innovations, as crop rotation replaced the medieval open-field and three-field systems, new plants such as potatoes and corn were produced, modern machines like seed drills and threshing machines were invented, and artificial fertilisers made more land fertile. Simultaneously, steamships and railways introduced a transport revolution which enabled Europeans to cheaply import food from overseas, especially in the last three decades of the nineteenth century. Finally, there were also rapid medical innovations in the second half of the nineteenth century, such as the discovery of bacteria and parasites, and the development of preventive healthcare. Combined with economic growth, these factors allowed for rapid demographic change in the nineteenth century.

Conclusion

The nineteenth century can be characterised as a century of revolutionary demographic change. States started to actively manage their populations, mortality and fertility decreased, and living standards started to improve. The changing role of states, the demographic transition, and improving quality of life were surprisingly similar across Europe. But this transformative process was still ongoing and, despite similar trends between countries, there were many local differences. It took until the twentieth century before mortality and fertility rates reached similar levels again.

Even though twenty to fourty percent of all children died before their fifth birthday at the beginning of the nineteenth century, most intellectuals were afraid of population growth as something that could only lead to hunger

and famine. The Industrial Revolution was at an early phase when, in 1798, Malthus wrote:

> A man who is born into a world already possessed, if he cannot get subsistence from his parents on whom he has a just demand, and if the society do not want his labour, has no claim of right to the smallest portion of food, and, in fact, has no business to be where he is. At nature's mighty feast there is no vacant cover for him.

These are cruel words, but the world at the time was even more cruel. More people started to survive, but they were starving, lacking resources, and pauperised. Few were born well-off and few could easily find their place in the world of the early industrial revolution.

Nevertheless, the world had changed significantly by the dawn of the twentieth century. Demographically, Europe was a forerunner, and its nineteenth century saw an "escape from hunger and premature death," in the words of Nobel Prize laureate Robert Fogel (1926–2013). Increasingly, people started surviving beyond childhood and the oldest in society grew older as well. As a result, populations grew rapidly, even though fertility also started to decrease. As it became evident that populations had escaped from this Malthusian trap, European states started to value population growth: sizable, healthy populations meant a stronger military and economic presence. The stage was set for a new era, even though the demographic developments were not immediately noticeable for everyone in society.

Discussion questions

1. What is the 'Malthusian trap'?
2. What were the main reasons for the population growth in nineteenth-century Europe?
3. How did governments and experts respond to population growth?
4. Why was the industrial revolution a mixed blessing?
5. Do you think that 'demographic transition' is a useful term to describe demographic trends in nineteenth-century Europe?

Suggested reading

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