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**Famine and Disease in Economic History:
A Summary Introduction**

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FAMINE AND DISEASE IN ECONOMIC HISTORY:
A SUMMARY INTRODUCTION

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ABSTRACT

Understanding mortality crises is an important part of understanding some fundamental aspects of preindustrial economies. Understanding the processes leading to their decline and the associated improvements in living standards and life expectancy is a precondition for knowing what is needed to prevent the re-emergence of widespread famine and lethal infectious disease. This short paper introduces a field in which policy makers and economists need to carefully consider the past, before making assumptions about the future.

Keywords: famine, disease, epidemics, economic history

JEL classification: N10

Famine and disease

The infrequency of severe mortality crises and, more generally, the low prevalence of famine and disease are characteristics of modern industrial and post-industrial societies. Understanding mortality crises is an important part of understanding some fundamental aspects of preindustrial economies. Understanding the processes leading to their decline and the associated improvements in living standards and life expectancy—what Robert Fogel (2004) called the ‘escape from hunger and premature death’ – is a precondition for knowing what is needed to prevent the re-emergence of widespread famine and lethal infectious disease. So this is a field in which the contribution of economic historians is vital; and, given that the stakes are so high, one in which economists would do well to carefully consider the past, before making assumptions about the future.

Famine

The prevalence of famine across the world declined dramatically during the nineteenth and twentieth centuries, due to unprecedented increases in economic and social development (Fogel 2004; Ó Gráda 2009). Famines are now a rarity, and threaten only the poorest countries of the world. Indeed, modern famines tend to be associated with wars and civil strife, which still put the lives of millions at risk (FAO 2017). Hence most analyses of recent large-scale famines treat them as ‘man-made’, i.e. the products of inefficient distribution, uneven entitlement to food, or war: an approach linked in particular to Amartya Sen (1981). Before him, though, Adam Smith had already discussed famines as the consequence of human actions in *The Wealth of Nations*, claiming that in Europe

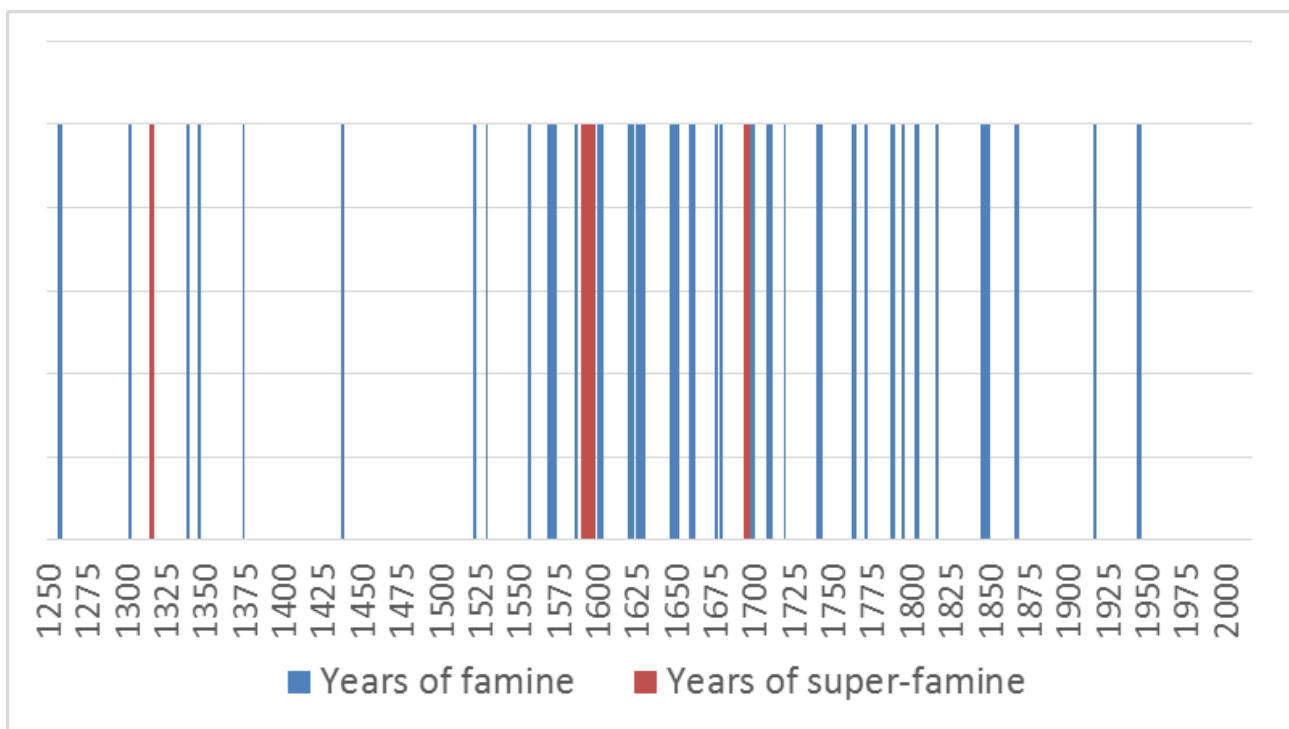
they had never arisen ‘from any other cause but the violence of government attempting, by improper means, to remedy the inconveniences of dearth’ (Smith [1776] 1976: 526).

Smith’s history was poor but he introduced the analytically crucial distinction between ‘famine’ and simple ‘dearth’, or scarcity of food. Only under specific circumstances did dearths, which were quite common, develop into famines. Soon, however, Thomas Malthus’s claim that famine was ‘the last, the most dreadful resource of *nature*’ (1798, ch. 7, our italics) replaced Smith’s focus on human agency. According to Malthus, famines contributed to solve the demographic unbalance resulting periodically from the spontaneous tendency of population to grow faster than any possible improvement in agricultural productivity.

The tension between the production of food, underlined by Malthus and his followers, and its distribution, on which Sen and Smith focused, shaped the discussion about the causes of famine. The debate had its political side, since it questioned the behaviour of ex-colonial powers (see, for example, Sen’s interpretation on the Great Bengal Famine of 1942-44 as the consequence of British colonial wartime policies) and also pitted supporters of free markets against those more favourable to public intervention. But it is not a question of either/or: famines can result from deficits of either production or entitlement. This is recognized in a recently proposed definition of famine: ‘a shortage of food or purchasing power that leads directly to excess mortality from starvation or hunger-induced diseases’ (Ó Gráda 2009: 4). This definition has the double practical advantage of clarifying what we should look for in terms of famine outcomes (famine is defined as a killing event) and of providing a synthesis of the two different views on the causes of famines (‘man-made’ and ‘natural’).

This being said, the historical link between famines and production shortfalls due to adverse weather shocks at times of high population pressure on resources is hard to deny. In preindustrial Europe only from the eighteenth century on did that link loosen, with the role of human agency looming larger thereafter. A recently-reconstructed comparative chronology of European famines (Figure 1) provides further support for the view that the probability of a famine occurring was much higher in periods of relatively high population density.

Figure 1. Timing of European famines, 1250-2017



Sources: derived from data provided by Alfani and Ó Gráda 2017.

The available data also point to three particularly severe European ‘super-famines’. The ‘Great Famine’ of 1315-17 was the worst food crisis of the late Middle Ages (although it spared Italy and other parts of south Europe), causing huge human losses (Jordan 1996; Slavin 2014). In southern England the second of our ‘super-famines’ (1590-98) was also the last one, while in Italy it was possibly the worst famine on record (Alfani 2013). Finally, the famine of 1693-97 proved particularly severe in France, where it killed up to 1.5 million people. But the regions most affected were in northern Europe: in 1696-97 famine may have killed one Finn in four and one in five of the population of present-day Estonia and Latvia (see the relevant chapters in Alfani and Ó Gráda 2017).

In terms of excess mortality these medieval and early modern super-famines dwarf some more familiar eighteenth-century events, such as the ‘Great Winter’ famine of 1708-09 and the ‘Year without a Summer’ of 1816 (Luterbacher and Pfister 2015). The impact of the ‘Great Frost’ of 1740-43 (Post 1985) was also generally ‘light’ by comparison, except in Ireland (Dickson 1997). The Great Irish Famine of 1846-50 and the Great Finnish Famine of 1867-68 (Curran et al. 2015) were two disastrous late ‘outliers’ in the history of European famines.

Beyond this general assessment, the in-depth analysis of specific famines has proved to be a fruitful way of exploring the inner workings of specific historical economies, from the early modern period (Alfani 2013) to the nineteenth century

and beyond. In this respect, the Great Irish Famine of 1846-50, well documented in official sources, a lively contemporary press, business and landed estate records, and folklore, is of particular interest. Such sources have informed numerous economic studies of Irish poverty on the eve of that famine and of its demographic toll, starting with Mokyr (1983). The latest of these, a cross-sectional analysis *à la* Mokyr, confirms the role of Malthusian forces as reflected in the ratio of quality-adjusted land to population, but also leaves room for institutional factors (Fernihough and Ó Gráda 2018).

The disastrous harvest failures that were the proximate cause of the Great Irish Famine were no ordinary crop failure; they were an ecological disaster. Given the extreme reliance on the potato in Ireland—unequalled anywhere else before or since—that *some* at the margins should perish when it virtually disappeared for several years in a row was inevitable. But most historians agree that dogma—an alignment of political economy, providentialism, fiscal rectitude, and prejudice—magnified excess mortality. About one million died of starvation and disease; the emigration of another million or so prevented an even higher death toll (Mokyr 1983; Ó Gráda 2017). Private charity was unequal to the gigantic challenge. Public charity, such as it was, was grossly inadequate, poorly designed, and unfairly funded. And, crucially, it was virtually withdrawn when the horror was still unfolding.

The Great Famine brought Ireland's long history of famines to a cataclysmic end. Europe suffered its last famines a century later, during and immediately after World War II. The Great Bengal Famine of 1943-44 was also ultimately a war-induced famine, though issues of culpability and food availability are still disputed (Sen 1981; Ó Gráda 2009). Some other notorious twentieth-century famines, such as those ravaging Ukraine in 1931-33, Moldova in 1946-47, and China in 1959-61 are blamed exclusively on Soviet and Maoist ideology, respectively, although the issue is controversial (Sen 1981; Ó Gráda 2009; Curran et al. 2015; Alfani and Ó Gráda 2017).

Today no one should die of famine anywhere, and fortunately few do. None of the 'extensive shortfalls' identified by the Food and Agricultural Organization over the past decade resulted in a famine, because of a combination of adequate early warnings, economic and societal resilience, and the globalization of disaster relief. It is only famines caused by war—think Ethiopia in 1985-6 or Somalia in 1993 and 2011-12—or by dysfunctional politics—think North Korea—that still put the lives of millions at risk.

Disease

As with famine, the prevalence of lethal disease has also declined over time—at least if we refer to mortality from acute infectious diseases, which have been progressively replaced by degenerative diseases or by diseases typical of older ages as the main cause of death. That decline was dramatic in developing economies during the nineteenth and twentieth centuries, as can be seen in Table 1 referring to England and Wales. However, in poor countries today, infectious diseases still account for about 40% of all deaths.

Table 1. Distribution of causes of death, 1850 – 2012 (%)					
Causes	England and Wales 1850	England and Wales 1900	England and Wales 1939	High-income countries 2012	Low-income countries 2012
Infectious diseases	44.7	35.8	14.5	6.0	38.6
Infectious (not respiratory)	26.2	18.2	3.7	2.6	28.2
Respiratory infections	18.5	17.6	10.8	3.4	10.4
Maternal conditions	0.9	0.8	0.4	0.02	1.7
Neonatal conditions	6.0	3.7	3.7	0.34	9.3
Non-communicable	44.8	56.1	76.5	87.3	40.3
Injuries	3.6	3.6	4.9	6.4	10.1
Total deaths	368,995	587,830	498,968	1,1671,361	5,696,969
Life expectancy	43	46	64	79	62
Source: Ó Gráda 2016; Davenport, 2007.					

Infectious diseases could cause large-scale mortality crises. During the nineteenth century cholera, originating in India, caused six global pandemics. Europe was first affected during the second pandemic (1829-51), with hundreds of thousands of deaths across the continent. The so-called 'Spanish influenza' of 1918-19 was even more murderous, and may have been the worst pandemic in the history of humankind, killing between 50 and 100 million people worldwide (Johnson and Mueller 2002). The huge death toll resulted from the sustained demographic growth that had occurred during the nineteenth century, and from the ability of the disease to infect a very sizeable part (as much as one-third) of the world population. The ability of influenza viruses to spread so quickly and efficiently is the main reason why the possibility of the appearance of a new lethal strain—especially the “avian” variant—is currently considered a major global health threat.

In terms of mortality *rates* (the percentage of the overall population killed) the worst mortality crises of recorded history were caused by plague. Plague also probably had the most pronounced economic consequences. The return of plague to Europe in 1347 and thereafter, after about six centuries of absence, was a momentous event, not only for the resulting mortality—the first wave of the Black Death killed between one-quarter and one-half of the population of

Europe and the Mediterranean (Alfani and Murphy 2017: 316)—but also for its vast consequences for human history, including economic history. While an earlier historiography underlined the positive economic consequences of the Black Death in the long run, such as efficiency gains through the re-organization of agrarian production (Herlihy 1997), recent research has focused more on how plague may have favoured the rise of Europe. Diamond (1997) suggests that plague, together with other pathogens, helped Europeans to conquer the Americas by acting as a sort of biological weapon. In the context of the ‘Great Divergence’ debate, Clark has argued that the Black Death and subsequent epidemics set Western Europe—unlike the most advanced parts of Asia, which were less affected by plague—on a path of quicker economic development by contributing to the creation of a ‘high-income’ Malthusian equilibrium resulting from a ‘high-mortality’ demographic regime. The paradoxical outcome was that plague, by reducing the life span of Europeans, led an improvement in their living standards (Clark 2007: 99-102; Alfani and Murphy 2017: 330). Indeed, there is evidence that real wages increased significantly in the wake of the Black Death (Pamuk 2007; Campbell 2010).

Moreover, in specific settings, from sparsely populated areas of Europe such as Ireland and Spain to the Nile basin where, by contrast, the capillary irrigation system depended upon high population density for its maintenance, the Black

Death had long-term negative, not positive, consequences because it destroyed pre-existing equilibria without offering opportunities for gains in economic efficiency (Álvarez Nogal and Prados de la Escosura 2013; Borsch 2015; Alfani and Murphy 2017: 331-2). In Eastern Europe, it has long been claimed that the Black Death led to impoverishment for the peasantry through a 'second serfdom', although not all agree on this point (Domar 1970; Dyer 1998: 111). Long-term negative consequences have also been blamed on later plagues, in particular those affecting Italy and other parts of southern Europe during the seventeenth century, which deepened the relative decline of these areas in the context of the 'Little Divergence' between North and South (Alfani 2013; Alfani and Percoco 2018). This highlights the need to pay attention to the context when attempting to provide an assessment of the economic consequences of plagues or of any other severe mortality crisis: hence the importance of adopting a genuinely historical-economic perspective.

Economic historians have explored many other possible implications of the Black Death, for example, the deep causes of the concomitant persecution of Jews (Voigtländer and Voth 2012). But perhaps the aspect currently commanding most attention is the re-distributive consequences of the Black Death, as this seems to have been the only event capable, during the entire 1300-1800 period,

of significantly reducing inequality (Alfani and Ammannati 2017; Alfani and Murphy 2017: 332-4).

Some lessons for the future

The progressive disappearance of famine from Europe is clearly connected to economic development. Generally speaking, the same holds for infectious diseases. Malthus himself listed plagues and other epidemics among nature's 'positive checks' on overpopulation—but we now know that the factors leading to the progressive disappearance of plague from Europe, a process which began in the second half of the seventeenth century (London's last plague outbreak dates from 1665-66: Cummins *et al.* 2016), are more complex. Although improvements in public health, hygiene and living standards almost certainly played a role, some of the other apparent changes in the epidemiology of plague remain somewhat mysterious and may have entailed the appearance of new pathogen strains. Pathogens mutate continuously, often in unforeseen directions: that is why the alert about the appearance of lethal strains of influenza viruses is so high today. Furthermore, new lethal human pathogens appear every few decades (think HIV or Ebola). Even *Yersinia pestis* (the bacillus responsible for plague) is far from having been eradicated. On the contrary, it

is currently endemic in most continents (Africa, Asia, and the Americas) and has to be considered a ‘re-emerging infectious disease’ (Ziegler 2015: 260–63).

The ability of potentially lethal infectious diseases to develop antibiotic resistance means that they continue to be a threat. On the one hand, economic history offers some consolation: most of the gains in life expectancy from reduced mortality due to infectious disease predate the ‘antibiotics revolution’ (Ó Gráda 2016). On the other hand, though, the history of microbial threats may imply that our societies and economies are more fragile than we like to think.

We might seek some reassurance from the thought that even if disease is still among us, famines in peacetime have virtually disappeared. But the historical experience of even a rich area like Europe, which experienced several famines during World War II, is a reminder that compromising the equilibrium between population and resources can always have dire consequences (Alfani and Ó Gráda 2018)– something worth bearing in mind in an epoch of rapid climatic change. Gaining better knowledge of past crises is one way of getting ready to face future ones, which is why the contribution of economic history seems to be particularly important in this area.

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