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# The Famine of the 1590s in Northern Italy. An Analysis of the Greatest “System Shock” of Sixteenth Century

*La famine de 1590 en Italie du Nord. Une analyse de la plus grande « crise systémique » du XVI<sup>e</sup> siècle*

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**The Famine of the 1590s in Northern Italy.  
An Analysis of the Greatest « System Shock »  
of Sixteenth Century**

**Abstract.** This article analyzes the extremely severe famine of the 1590s in northern Italy, triggered by several consecutive years of bad weather at a time of particularly acute population pressure on the available resources. Their failure fuelled a general « system shock » for the social, economic and demographic structures of Northern Italy, leading to protest, violence and general social and economic disorder. The article recurs to a large database of demographic time series to identify the areas struck worst by the famine. It then focuses on the region Emilia-Romagna, and lastly provides a case study of the rural town of Nonantola, for which rare data about age at death during the famine are used. The article suggests that the 1590s famine was not solely the result of the combination of climate, agrarian technology and demographic density, but was a complex « human failure » than can be fully understood only by taking into account also institutions, culture, social and economic behaviour, and even psychological factors.

**Résumé. La famine de 1590 en Italie du Nord. Une analyse de la plus grande « crise systémique » du xvi<sup>e</sup> siècle**

Cet article analyse la grande famine qui s'abattit sur l'Italie du Nord dans les années 1590, à la suite de plusieurs années de mauvaises conditions climatiques, survenues dans un contexte de forte pression démographique. Cet épisode provoqua une « crise systémique » qui déstabilisa l'ensemble des structures sociales, économiques et démographiques de l'Italie du Nord et donna naissance à un ensemble de désordres économiques et sociaux. Par l'analyse de séries démographiques, appliquées notamment au cas de l'Émilie-Romagne et de la communauté rurale de Nonantola, l'article montre que la famine des années 1590 ne résulta pas seulement de la conjonction de facteurs climatiques, techniques et démographiques particuliers, mais qu'elle fut aussi la conséquence d'une faillite humaine complexe, qu'on ne peut comprendre que si l'on prend en compte les institutions, les comportements sociaux et économiques ainsi que les facteurs culturels et psychologiques.

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At the beginning of the 1590s, Northern Italy was struck by a famine whose scope and gravity soon appeared to be unprecedented. The famine was caused by several consecutive years of bad weather which damaged directly the crops and also favoured the insurgence of maladies such as the *ruggine* or wheat rust which later spread to France and to other parts of Europe. Especially in 1591-1592, finding cereals became a nightmare for the provision authorities who often had to admit that they were unable to collect food for the urban populations. Their failure fuelled what can be defined as a general « system shock » for the social, economic and demographic structures of Northern Italy, leading to protest, violence and general social and economic disorder.

With the help of a large database of demographic time series related to cities, towns and villages in the area, the aim of this article is to identify exactly who was struck by the famine, in order to evaluate the capability of different environments to react to a shortage of wheat and other grain, and also to better identify what caused the different intensity of the crisis at the local level. In particular, the analysis will shed light on the functioning of urban food provision authorities (the *Annone*) during such a severe shortage, and will allow for comparison between cities and villages: the latter being only apparently favoured by their proximity to the countryside and by their food-producing orientation.

Following a description of the general characteristics of the crisis and of its macro-demographic consequences (section 1), the article will focus on Emilia, an area in the middle of the Po plain which was among those worst struck, in order to better understand the effectiveness of urban food provision authorities in times of extreme stress (section 2). Lastly a case study, that of the rural community of Nonantola near Modena, will be analyzed to provide further information about the nature of this system shock as a « demographic », or « mortality », crisis (section 3).

## 1. The worst Italian famine ever?

In Autumn 1589 many parts of Italy were ravaged by heavy rain. We know from chronicles and other sources that floods occurred in Campania and Tuscany, as well as in the city of Rome. This was just the beginning of a long period of climatic instability: in Spring 1590 there was heavy rain in Emilia and Lombardy and storms and floods in the mainland domains of the Republic of Venice<sup>1</sup>. Soon, the bad weather favoured the appearance of grain diseases such as wheat rust, which further damaged the harvest<sup>2</sup>.

The adverse meteorological situation faced by Italy is only one example of a more general situation of climatic instability, whose effects were Europe-wide at least<sup>3</sup>. Since Emmanuel Le Roy Ladurie's classic book on the history of climate<sup>4</sup>, we know that a particularly cold period began around years 1550-1560, with Alpine ice-fields reaching a maximum extent by 1600: the acute phase of a « Little Ice Age » probably spanning mid-fifteenth to mid-eighteenth century, but whose exact chronology is still the object of much debate<sup>5</sup>. On the other hand, recent analysis of Late Medieval famines coupling data about grain prices and yields with refined information about weather (as obtained by dendrochronological series and study of the Antarctic layers of ice) led to the conclusion that:

« [the most notable famines] can have been the product of no ordinary runs of adverse weather. Instead, each was almost certainly the outcome of some abnormal and extreme short-term climatic perturbation ».<sup>6</sup>

Unfortunately, this kind of information is currently much more abundant for Northern Europe than for Southern. Consequently, the information about weather used in this article will be mostly of a qualitative nature<sup>7</sup>. As shall be seen, it was some continuous years of bad weather, happening at a time when the global climate was cooling, that triggered the worst famine ever faced by Northern Italy during the Late Medieval or Early Modern period.

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1. DAVIDSON, N. S., 1985; BASINI, G. L., 1970; CORRADI, A., 1973.

2. ALFANI, G., 2010a; AYMARD, M., 1973; FERRARESE, A., 2010.

3. CLARK, P., 1985.

4. LE ROY LADURIE, E., 1983.

5. APPLEBY, A. B., 1980; CAMPBELL, C., 2009; 2010; FAGAN, B., 2000; LOEHLE, C. & McCULLOCH, J. H., 2008.

6. CAMPBELL, C., 2009, p. 10.

7. See G. ALFANI, 2010c, for a more detailed reconstruction.

While in North Europe, the peak of the crisis was reached in 1596, Italy was considerably more precocious. The first year characterized by very poor crops was 1590: a fact of which the local authorities were well aware. In June, immediately after the harvest, the governor of Modena (Ferrante Estense Tassoni) informed the Duke of Ferrara that the new crop of grain had yielded only a third compared to the previous year (which admittedly had been a good one)<sup>8</sup>. Later it became apparent that also the grapes would provide a very poor yield. What preoccupied the food provision authorities of the Italian cities and states, however, was not only the scarcity of the crops – but the extent of the crisis, which eventually affected practically all the most fertile areas of the peninsula, from Sicily and Puglia to the Po Plain<sup>9</sup>. As will be shown in section 2, this fact was at the root of a real « system shock » which not only made it impossible to rely on market forces to assure the local presence of food<sup>10</sup>, but also made it very difficult for the authorities to react in effective ways. Of course, some grain-producing regions were struck worse than others, both by bad weather and by epidemics of diseases often associated with famine such as typhus<sup>11</sup>, but all of them were affected, at least to a degree.

As I argue elsewhere<sup>12</sup>, the acute character assumed by the crisis in Italy, and maybe even its precociousness, are not dependent solely on meteorological conditions but could not be fully understood without keeping in mind the fact that the maximum carrying capacity of the Italian demographic system(s) had been reached. As suggested by a reconstruction of births for the whole of Northern Italy presented in Figure 1<sup>13</sup>, the population reached a maximum in the 1580s, entered into a crisis in the 1590s, and at the beginning of the seventeenth century reached again the pre-crisis

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8. BASINI, G. L., 1970, p. 67-68.

9. DEL PANTA, L. & LIVI BACCI, M., 1977; DEL PANTA, L., 1980, p. 144-150.

10. We should be careful in implying the existence of free markets in the Late Medieval and Early Modern period. For a discussion of the implications of this for a historical analysis of economic-demographic dynamics, see J. HATCHER & M. BAILEY, 2001, p. 63-65.

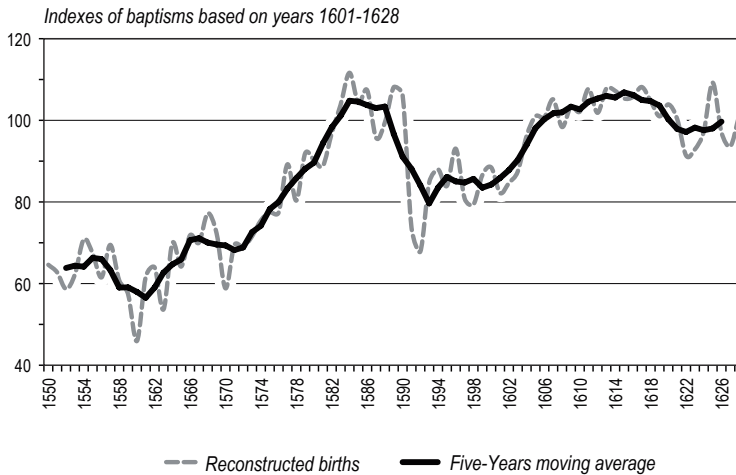
11. Typhus was responsible for the worst rises in mortality rates to be found during the crisis. See L. DEL PANTA, 1980, about the role played by this disease in the demographic history of Italy, and also G. ALFANI, 2010a, about its presence in sixteenth century Italy (according to the famous physician Gerolamo Fracastoro, typhus was a new disease for Italy, appearing for the first time in 1505).

12. ALFANI, G., 2007a; 2011a.

13. It must be noted that the use of births as an estimate for total population is not devoid of problems, but is unavoidable for a period when parish books of deaths were generally unavailable (they were made mandatory in Catholic areas only by the *Rituale Romanum* introduced in 1614). About this issue, the methodology used in elaborating the reconstruction, and for a fuller comment on it, see G. ALFANI, 2007a.

level without being able to breach it. As shown by a recent reconstruction of the trend of the Italian population from the times of the Roman Empire, the same maximum of population found in the 1580s and 1620s had been reached (and subsequently lost) already in the first or second century and in the fourteenth, before the Black Death<sup>14</sup>. This empirical regularity suggests a long-lasting limit to population growth in the Italian peninsula. The 1630 plague, by killing about 1/3 of the inhabitants of Northern Italy only sparing most of Liguria, provided a kind of solution to the imbalance between population and resources allowing time to complete the agrarian innovations that would permit a further growth of population in the eighteenth century. Some of these innovations, and particularly the spread of crops coming from the New World such as maize, would not have been possible before the seventeenth century, or before the end of the sixteenth at most, and required many years to be completed<sup>15</sup>.

Figure 1. *Reconstruction of births in Northern Italy, 1550-1628*



Source. Database G. ALFANI.

Bad weather, then, struck Italian demographic and agrarian systems at a particularly difficult time. This was also a period of transformation for the Italian rural areas, especially in the north: a transformation which was however still incomplete, or was unavoidably slow and unable to sustain a population growing too quickly notwithstanding the processes of agrarian

14. LO CASCIO, L. & MALANIMA, P., 2005.

15. ALFANI, G., 2010b; 2011a.

innovation at work<sup>16</sup>. In section 2, the case of Emilia will be developed also in this perspective. This demographic fragility has little to do with an economic fragility. Contrary to the hypothesis put forward by Carlo Cipolla<sup>17</sup> that the boom of the Italian economy in the second half of the sixteenth century, after the end of the Wars of Italy fought by France and Empire for supremacy over the peninsula, was only an « Indian summer », I think that the economic recovery of the Italian states was very sound and was finally compromised by exogenous shocks: particularly by the plagues of 1629-1630 and of 1656-1657. In this perspective, the famine of the 1590s was not, as Cipolla and others<sup>18</sup> had it, the sign of an incumbent economic crisis, but it was simply the signal of a difficult relationship between man and resources precipitated by a fast demographic growth: a growth, which was in itself proof of the solidity of the Italian economies. This would also be demonstrated by the fact that the population recovered quickly after the famine (Figure 1), suggesting that the high level of both population and economic development attained by the 1580s possessed a degree of stability and was not short lived as Cipolla argued. In the north only the plague of 1629-1630, which struck at a time of fierce international competition, particularly from North European countries, was able to cause lasting damage to the economy of the area. This hypothesis is developed elsewhere<sup>19</sup>.

Even if the crops were terrible already in 1590, it is in the following years that the real crisis began. This is not due to a further worsening of the situation, but to the fact that the reserves had become exhausted, and that cities and communities were now badly indebted given the cost of buying grain abroad, especially in Northern Europe where the situation was not yet critical. This is the case of the grand-dukes of Tuscany and of the Republic of Genoa who bought grain in the Baltic<sup>20</sup>, or of the city of Palermo that tried to get some through English merchants<sup>21</sup>. The situation worsened further in 1592 and in certain areas of Italy, such as Emilia, also 1593 was

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16. ALFANI, G., 2007a; 2011a.

17. CIPOLLA, C. M., 1997.

18. DAVIDSON, N. S., 1985.

19. ALFANI, G., 2010a; 2010b; 2011b.

20. F. BRAUDEL & R. ROMANO, 1951, measured a sharp rise in the number of ships from Danzig, Amsterdam, Hamburg and Lübeck reaching Livorno (quickly becoming the main harbour of the Grand Duchy of Tuscany), beginning in 1590-1591 (31 ships), reaching a peak in 1591-1592 (87 ships) and staying high in the final phase of the crisis (59 ships in 1592-1593). According to Braudel and Romano, this was the result of growing demand for grain in the Mediterranean caused by repeated bad harvests.

21. BRAUDEL, F. & ROMANO, R., 1951; CORRADI, A., 1973; COSTANTINI, C., 1978.

characterized by bad crops. The overall situation, however, had changed, the crisis was no longer general, and provision authorities could buy the food they needed with comparable ease.

As already explained, for this period information about mortality (burials) is still scarce and related almost exclusively to urban environments. The data for the rural community of Nonantola discussed in section 3 is the rare exception. If we want to analyze in detail the territorial extent of the crisis, and its ability to affect very diverse environments, we have to look once again at fertility (baptisms). Historical demographers have established that most food crises did not cause a sharp increase in deaths, but had much more visible effects regarding marriages and births. As a consequence, it has been suggested that the trend of births, not deaths, is the indicator most sensitive to dearth and famine<sup>22</sup>. Also related to this is the distinction between « mortality crises », defined specifically as an increase in deaths over a normal level, and the more complex notion of « demographic crises », which also takes into account fertility, marriage and migration<sup>23</sup>.

The available time series of baptisms, which I used to construct a large database covering all of Northern Italy<sup>24</sup>, confirm that the peak of the crisis was reached in 1591-1592: it is in 1592 that the drop in births was the most severe, and this was the year when the famine began to affect also people living in the mountains. One can hypothesise that a lesser dependence on the grain harvest enabled the population to resist the famine for a certain period but not indefinitely. It is also probable that mountain dwellers suffered less than others from typical complications of famine such as typhus, more severe in crowded areas such as cities and the rich lowland countryside (we know of epidemics of typhus in the cities of Bologna, Piacenza, Faenza, Modena, Reggio, Parma, Ferrara, Mantova, but also in Veneto, Tuscany and Lazio<sup>25</sup>). The mountains, though, are the only environment where we find communities seemingly spared by the famine or at least affected so slightly as to show no demographic reaction.

To appreciate the way in which the famine affected different parts of Northern Italy, it is useful to refer to a map (Figure 2) in which the presence or absence of the crisis has been hypothesized by taking as a reference localities that undoubtedly suffered because of it, as confirmed by historical

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22. CATTINI, M., 1983; BELLETTINI, A., 1987.

23. GOUBERT, P., 1968; ALFANI, G. & GOURDON, V., 2009.

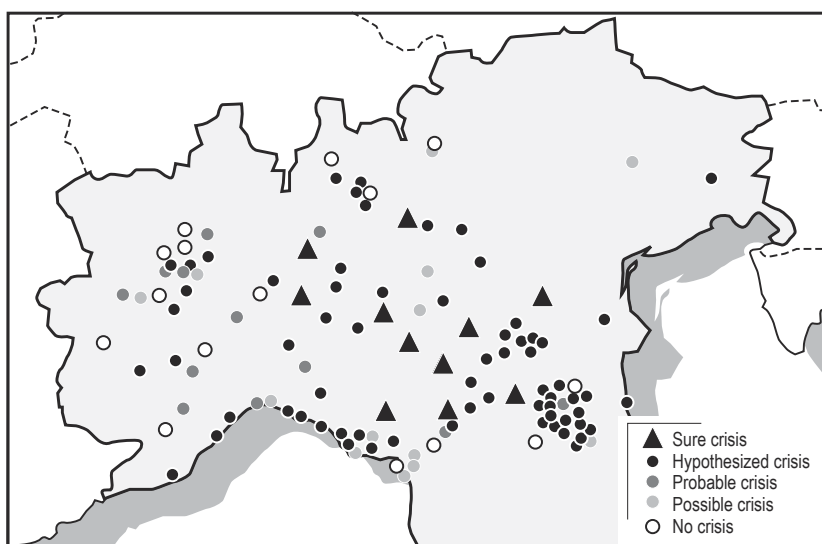
24. About this database and its characteristics, see G. ALFANI, 2007a; 2010a.

25. ALFANI, G., 2010a.



research. In these localities I found an average reduction in births of 44%<sup>26</sup> and on the basis of this I formulated hypotheses about the occurrence of the crisis elsewhere<sup>27</sup>. In the map, no distinction is made between urban and rural communities because the aim is to show the extent of a crisis that involved both cities and rural areas. The scarcity of cases related to the North-East is not due to the absence of crisis, but to a scarcity of available information<sup>28</sup>.

Figure 2. *The famine of the 1590s: geographic extent*



The map well illustrates the generalized extent and the severity of the famine: in the early 1590s, finding grain in Italy must have seemed nigh

26. This figure was obtained by comparing the average level of births in the years 1586-1590 with that of 1591-1592.

27. I have hypothesized the presence of a crisis where the fall in births was equal or superior to 22% (half the average value found where a crisis is certain). I have defined probable the recurrence for reductions of between 15% and 21.9% and possible between 4% and 14.9%. Where the births dropped less than 4% or increased, it is probable that there was no famine or that it was very mild.

28. Note that testing the spatial extent of the crisis required me to avoid selecting the cases considered, using instead all available time series of baptisms. These time series were originally collected for reasons independent from the occurrence of the crisis.

impossible, a veritable nightmare for the food provision authorities. The situation is even more striking, if we consider that in the area in the map characterized by a prevalence of black spots, the reduction in births compared to the pre-crisis period is equal to 22% at least: a measure, however, which at the local level was often exceeded (the average reduction is 45.5% with peaks close to 80%). If births are very sensitive indicators of the occurrence of a food crisis, the famine of the 1590s was characterized also by exceptional mortality. In Bologna for example we find, between 1587 and 1595, a drop in total population of about 18% within the city; 21% in the suburbs; 13% in the rest of the diocese<sup>29</sup>. Also in Milan and Venice an increase in mortality has been underlined<sup>30</sup> and in some cases, such as the small cities of Carpi and Sabbioneta, the famine was the cause of a dramatic drop in population (minus 30 to 40%) which however is only partially due to mortality since permanent migration also played an important role. In these latter cases, it is the loss of the privileged status of capital that makes a city less attractive. The famine, then, becomes the opportunity to breach a psychological resistance to emigrate, moving to places characterised by better expectations<sup>31</sup>.

Looking at the few blank circles corresponding to places where the reduction in births was modest (inferior to 4%) or non-existent, we note that the places spared are concentrated at the edge of the Po plain, along the Alpine arc and in certain areas of the Ligurian Apennines. In almost every case these are mountain villages, especially if we discount some parishes of the suburbs of Bologna where the evaluations may have been distorted by the small number of annual baptisms (the lower the number of baptisms per year, the greater the influence on the demographic trend of random variations). Factors such as differences in the regime of land ownership surely had an impact on individual access to resources, but in such a severe crisis they did not determine which communities were spared the worst consequences, as has been shown elsewhere<sup>32</sup>. Also differences in the action of food provision authorities or in access to markets do not seem to be decisive<sup>33</sup>.

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29. BELLETTINI, A., 1961.

30. DEL PANTA, L., 1980, p. 148-149.

31. ALFANI, G., 2008; 2010a.

32. ALFANI, G., 2007a, where also differences in the crops cultivated were considered.

33. See section 2 for the case of Emilia and G. ALFANI, 2010a, for an overview of the action of North Italian food provision authorities during the famine. Note however that institutions and access to markets did play a role at a later stage in the crisis. In the case of Genoa for example, the city suffered in 1590 and 1591 but from 1592, thanks to an effective public policy aimed at opening new trade routes with North Europe, it became possible to import

The geographic position is the best explanation of why these places escaped the crisis. In fact, the relationship with the territory established by mountain dwellers was very different from that of plain dwellers, being characterised by a lower population density and a different crop regime<sup>34</sup>. The second point is decisive, since the 1591-1592 crisis was essentially due to a grain shortage. Mountain populations based their nutrition on animal husbandry, horticulture, and the growth of specialized crops more than the populations in the lowlands and obviously suffered less from a lack of grain. Furthermore, the importance of arboreal crops typical of low and mid-mountain must not be neglected, above all the chestnut, which is very resistant to adverse climatic factors and whose fruit is highly calorific and rich in vitamins<sup>35</sup>. The fact that in years of good or normal crops many mountain communities imported grain from the plain is not in contrast with the conclusion that, during a severe grain crisis, those same communities show a relatively low vulnerability. This is only one of the perspectives from which we find, during the 1590s crisis, a reversal of the « normal » condition.

If the Apennines, the Alps and Pre-Alps were largely spared by the famine, it is in the core of the cereal-growing Po plain that it reached its maximum severity. Here, some of the largest cities existing in Europe at the time depended on a demographic-agrarian system built upon ancient ties among cities, their *contadi* or surrounding countryside, and other food-producing areas further away. It is this system, which is both economic and social in nature, that after a long period of continuous shortage entered into a crisis and finally broke down. In the next section I will analyze this process focussing on the case of Emilia, in normal times characterized by a particularly rich agriculture but badly affected by the crisis of the 1590s.

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large quantities of grain from the Baltic not only for satisfying the local needs, but also for reselling to other Italian regions with huge profits (GRENDI, E., 1971; COSTANTINI, C., 1978).

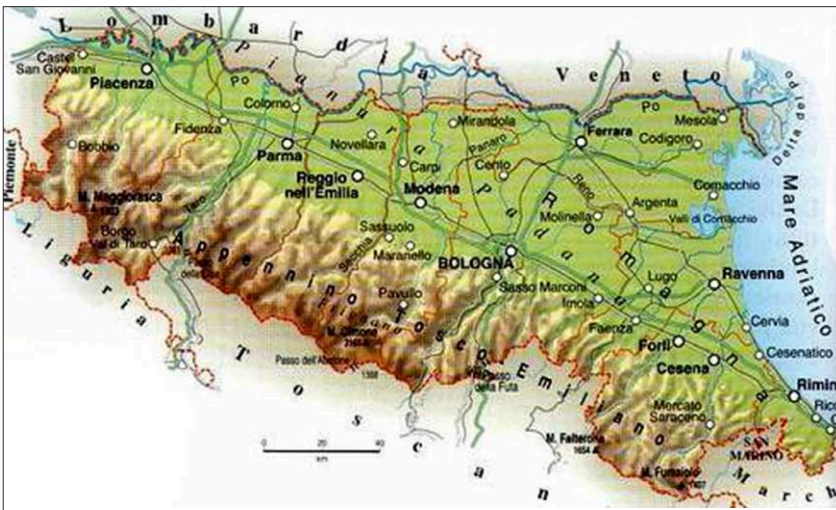
34. MATHIEU, J., 2000.

35. About this, see also G. ALFANI, 2007a; 2010a; about the expansion of the cultivation of the chestnut in many areas of South Europe during the Early Modern period, see J.-R. PITTE, 1986.

## 2. The shock of regional systems: the case of Emilia

The most striking characteristic of the great famine of the 1590s, *i.e.* its length, caused the short-circuit of the Italian provision systems. My aim is now to describe and to explain this process, focussing on a particular region which in normal years was among the most fertile areas of the whole peninsula: Emilia. Positioned south of the River Po, which divides it from Lombardy and Veneto, Emilia today makes up most of the administrative region Emilia-Romagna. This is relevant to our case given that some of the statistics presented have been built on the base of such administrative boundaries; however, most of the other data is related to the cities of Modena and Bologna and the surrounding countryside, at the very heart of Emilia. Romagna can roughly be identified as that part of Emilia-Romagna placed south of the River Reno (crossing the territory of Bologna and Imola, later reaching the sea to the north of Ravenna; see Figure 3); the rest of the region is Emilia.

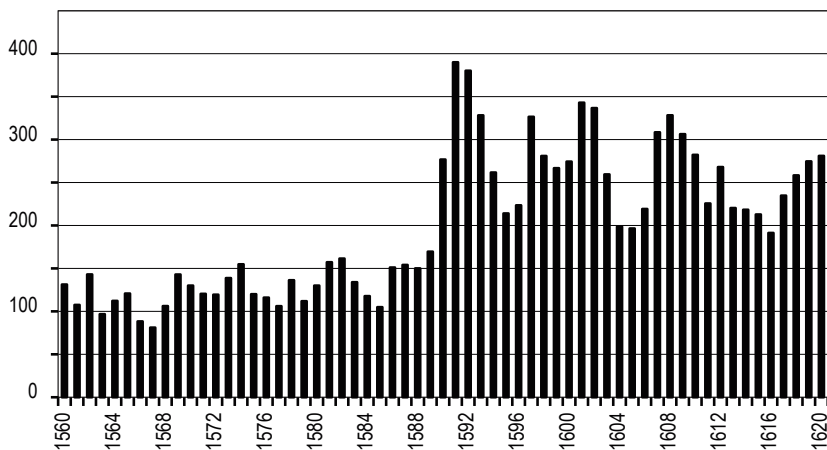
Figure 3. *The region Emilia-Romagna, current administrative boundaries*



In Emilia-Romagna the famine struck hard everywhere. In the cities, the prices of wheat reached extremely high levels. In the case of Modena, the price of 390 *soldi per storo* in 1591 was unprecedented and would be exceeded only in the seventeenth century, due to the well-known infla-

tionary trend characterizing most of the Early Modern period. Figure 4 shows the quick rise in prices, from the 150.05 *soldi per staro* of 1588, to 169.5 in 1589 (+13% on a year-to-year base) to 276.75 in 1590 (+ 63.3%) and to 390 in 1591 (+ 40.9%): the final price being more than two and a half times that preceding the crisis.

Figure 4. *Soldi per staro of wheat paid in the city of Modena, 1560-1620*



Source. BASINI, G. L., 1970.

The prices remained high also in the years following 1591, beginning (briefly) to approach the pre-crisis levels only in 1594-1595. It must be said, though, that in the case of extreme famines such as this one, food prices fail to fully reflect the gravity of the situation. At a certain point during the crisis, the price paid for wheat and other cereals on the urban markets is no longer an index of the real possibility of finding food in the cities. To put it bluntly, there is a price, but there is no wheat. For the authorities, then, the problem becomes that of finding resources which are to be rationed and distributed to the starving population, mostly freely (practically nobody can afford to pay, and anyway there is no food being sold on the market). In Bologna, already on first September 1590 private stocks of food reserves were requisitioned by the *vicelegato* (the governor) to be distributed by the government<sup>36</sup>. Private reserves, however, could not last long and soon it became necessary to import food from outside the 'Bolognese *contado*'. When the situation becomes extreme, provision authorities even stop wor-

36. POLVERINI FOSI, I., 1985, p. 177.

rying about how indebted they might become in order to buy food, as in Modena in 1593, when the city does not ask the Dukes of Este for money to buy wheat, but to only find some wheat for which the city itself is willing to pay, at any price:

« Continuing the third miserable year and perhaps worse than the past, we beg Your Highness to provide your city with the quality and quantity of grain that is sufficient to feed your extremely devoted people and with the best possible conditions, the community offering to pay the agreed prices [...], because there are supplies of bread for the people for no more than eight days, we beg you to give prompt assistance so that no disorder occurs » (cit. in G. L. BASINI, 1970, p. 7, my translation).

Whereas in the first years of the crisis the state of the public finance had been one of the aspects taken into account by the Modenese city authorities, this issue is eventually dropped entirely: a sign of the short-circuit of all « normal » ways of reaction to the crisis. I shall return later to this point.

The cities were not the only ones to suffer. In those years, the food-producing countryside suffered equally from the shortage, and even worse: given that the rural people enjoyed much less protection by the authorities compared to the citizens. In graph 3 are presented aggregate time series of baptisms (births) built with a methodology analogous to that used for Figure 5<sup>37</sup>. The time series are related to the whole of Emilia-Romagna, and include an estimate for the total population which is the result of a weighted sum (according to the relevant urbanization rates) of the trend characterizing: 1) the rural population; 2) that living in small cities (< 10,000 inhabitants); 3) that living in large cities (> 10,000 inhabitants). These three components are also shown in the graph.

The trend of births reconstructed for the whole of Emilia-Romagna follows closely that of the rural population. This fact is simply due to the prevalence of this component on the total: even considering that the urbanization rates of the area were very high, the share of Northern Italian population living in large cities has been estimated by De Vries<sup>38</sup> to be around 15.1% in 1550 and 16.6% in 1600, while that of population living in small cities (5,000-9,999 inhabitants) would be 5.21 and 5.01 respectively. Other urbanization estimates exist, but all of them confirm the general conclusion

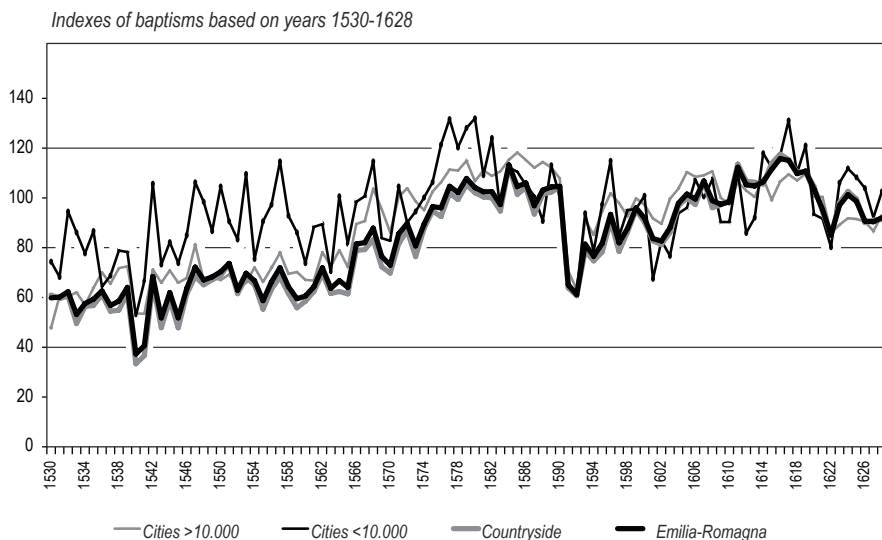
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37. Actually, the series for Northern Italy presented in Figure 1 is a weighted sum of regional time series, one of which is the Emilia-Romagna time series presented in Figure 3. About this methodology see G. ALFANI, 2007a; 2010a and, for greater detail, G. ALFANI, 2004a.

38. DE VRIES, J., 1984.

that about 4/5 of the population lived in rural communities or in sparse settlements.

Figure 5. *Reconstruction of births in Emilia-Romagna, 1530-1628*



Source. Database G. ALFANI.

To understand the nature of a severe subsistence crisis, the most useful conclusion from graph 3 is that, if we look at the time series for the rural and for the urban populations, we find in all instances a severe drop in births. This is slightly worse in the cities than in the countryside, but the key point is that in the early 1590s everybody was badly affected by the crisis. This happened in different ways and for different reasons, and with a very different role being played by the local and national authorities.

In the cities, the main issue was to maintain the order and avoid revolts. Even feeding the people came to represent a kind of ancillary end – given that it was impossible to avoid riots without providing the population with a minimum of food. As has been recently suggested, poverty and hunger are not the principal reason but just one of many possible causes for popular revolt in the late Middle Ages<sup>39</sup>. At the same time, it is certainly true that during a famine the crime rate and the general propensity for violence in-

39. COHN, S. K., 2006.

crease dramatically. City authorities were well aware of this, and during severe subsistence crises they regularly decided to expel the so-called « useless mouths »: people without citizenship, who were beggars, jobless foreigners, or even those employed but without any highly professionalizing skill<sup>40</sup>. This is what happened in Bologna in 1590<sup>41</sup> while in Napoli, also affected by the famine, a decision was taken to expel foreigners and students<sup>42</sup>. The following year, the poor or jobless foreigners were expelled from the whole of the territory of the small Duchy of Mantua<sup>43</sup>. These are only examples of decrees of expulsion which had three main objectives: first, to reserve the scant food available for the citizens and people having more « right » to it in general; secondly, to avoid overcrowding and the outbreak of epidemics (of typhus or others); thirdly, to ensure that the poor, bound to suffer the worst because of the crisis, would not revolt, cause damage to urban property and steal what food they could find, thus depleting the shrinking reserves.

The expulsion of the poor was, on one hand, a « normal » way of facing the worst crises, but on the other hand it also represented the failure of a system which was unable to care for increasing numbers of people in need. The urban *élites* had mixed feelings about the difficult choices that had to be made. For example in Bologna in 1590, according to the chronicler Pompeo Vizzani, the city expelled the rural population that had flocked into the city led by desperation (no food was to be found in the countryside). An attempt however was made to help them outside the walls: it was decreed that four ounces of rice per head were to be distributed daily in specific points of the *contado*. Vizzani, who was close to the city government, tends to throw a positive light on this as well as other initiatives taken to feed the urban poor – many of whom were actually interned to prevent trouble. However the same author enables us to judge for ourselves the effectiveness of this charity, by stating that about 10,000 poor died in the city of Bologna, and about 30,000 in the *contado*: hardly a great success for the food provision authorities.

The fact that in the lowlands of Emilia more people died in the countryside than in the city should not come as a surprise. During the famine of

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40. These useless mouths were the main victims of all the urban crises typical of the Late Medieval or Early Modern periods: be they sieges, famines, or plagues. They are, however, clearly an under-studied category. For an attempt at making clear their condition, the risks they incurred and their complex juridical situation, see G. ALFANI, 2010a.

41. VIZZANI, P., 1608.

42. CORRADI, A., 1973.

43. BELFANTI, C. M., 1982, p. 107-109.



the 1590s, the same happened in Parma<sup>44</sup> as well as in many other cities. This does not depend solely on the fact that most of the population lived in the countryside, but may be the symptom of higher mortality rates. Paradoxically, during a bad famine the traditional relationship of city and countryside, the first consuming food and the other producing it, is reversed: with the rural people looking to the cities as sources of food. It was in the cities, in fact, that the food provision authorities were placed: authorities that (theoretically) had the means to look for food in distant areas of the State, in other States, and even across the sea, and whose action during the worst famines was considered fundamental to ensure the presence of grain in the urban market<sup>45</sup>. What the rural people, in their desperation, failed to understand is that those were *urban* authorities unwilling, or unable, to help them. When they realized this fact, usually the hard way, they fell prey to dreams of mythical lands full of food. In the 1590s, at the peak of the crisis, the rural people of Emilia mass-migrated to Lombardy only to discover that the peasants of Lombardy were themselves migrating southwards. They were repeating old mistakes but, as brilliantly clarified by Piero Camporesi<sup>46</sup>, nothing was more capable of causing self-suggestion among the desperate than the slow torment of hunger. At the time of the 1539 famine, the rural people of the Modena *contado* had behaved similarly:

« They left with all their belongings and family and went to Lombardy, and most of them to [the city of] Pavia, because it was said that there they were distributing *gnocchi* with spices and butter and well sprinkled with cheese (...) and that they tied the vineyards with yellow sausages ». (Tomasino de' Bianchi, cit. in G. L. BASINI, 1970, p. 14, my translation).

Fifty years later, their descendants proved to have learnt nothing from the, often fatal, misjudgement of their predecessors and once again set foot on the very same path of hope. While such behaviour caused economic concerns to the authorities (the migrant peasants often stole the cattle and property of the landowners), it also became a further scourge inflicted upon the countryside: where roving bands of hungry peasants devastated what was left of the crops, and sometimes even converted into brigands prone to violence<sup>47</sup>. I will further develop this point in the next section. It would

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44. ROMANI, M. A., 1975.

45. About the functions of the *annone* (food provision authorities) in Early Moden Italy, functions which tended to expand during and after the 1590s crisis, see G. ALFANI, 2010a, p. 118-124; STRANGIO, D., 1998; MARIN, B. & VIRLOUVET, C., 2003.

46. CAMPORESI, P., 1981; 1985.

47. This situation of widespread violence, especially – but not only – in the countryside, is to be found all over Italy during the famine. See for example, for the Republic of Venice, C. POVOLO 1986, and for the Papal State, I. POLVERINI FOSI, 1985.

be unfair, however, to think that the rural masses were always unable to understand the real situation and were not « rational » enough to react in the right way. On the contrary, the farmers of Emilia had long been aware of the danger represented by the growing imbalance between population and food production capacity. Proof of this is the slow evolution from the open field, to the farming technique called « *chiusura* », and then to the more intensive « *piantata* »<sup>48</sup>. This transformation, which began at the end of fifteenth century and was completed around 1620, sacrificed food variety in favour of greater availability of calories and established an alimentary model based almost solely on bread and wine<sup>49</sup>. While this process of innovation can be understood in terms of a « Boserupian » chain-reaction induced by demographic pressure<sup>50</sup>, it was too slow to compensate for a population growing very quickly<sup>51</sup>. It also became a factor of fragility for the agrarian-demographic system, given that an excessive reliance upon wheat exposed the farmers and peasants of Emilia to greater risks in times of meteorological conditions particularly unfavourable to grain. This is precisely what happened in the 1590s, when the inhabitants were left without any real option, became desperate and then fell prone to the « irrational » behaviour already described. Overall, this outcome would surely be better qualified as « Malthusian » than as « Boserupian »<sup>52</sup>.

It should be clear by now that a defining characteristic of the worst subsistence crises is the temporary rupture of the social, economic and even legal and administrative equilibria. In the initial phase, the authorities can

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48. *Chiusure* and *piantate* are surrounded by hedges, fences or ditches to keep out animals grazing in surrounding fields. The changeover to the *piantata* is characterised by the progressive reduction of the grazing area in favour of the cultivated area with the consequent abandonment of semi-nomadic animal husbandry (CATTINI, M., 1984, p. 28-37).

49. CATTINI, M., 1984.

50. According to E. BOSERUP, 1965 and 1981, demographic pressure itself promotes technological micro-innovations to traditional practices and permits a slow increase in total population by starting a chain reaction. A periodic « malthusian » re-equilibrium of population and resources is not necessary. As matter of fact, in sixteenth century Italy both Boserupian and Malthusian population dynamics are to be found, as explained in G. ALFANI 2007a; 2010a; 2011a.

51. ALFANI, G., 2007a; 2010a.

52. Malthusian and Boserupian population dynamics, which are usually presented as contrasting (see for example, M. LIVI BACCI, 1997), can also be combined and considered as one integrating the other. This is for example the case of Ronald Lee's dynamic synthesis (LEE, R., 1986), which I have applied to the Italian case elsewhere (ALFANI, G., 2011a). Also see the recent synthesis by N. CUFFARO, 2001, on the different views about the relationship between population, economic growth and technological innovations, and on the conditions of applicability of the original Boserupian theory.

manage the reserves<sup>53</sup> stockpiled to answer to « normal » years of scarcity (according to an estimate, one year out of four was affected by bad crops<sup>54</sup>). When the crisis continues year after year, frustrating all expectations of improvement, both the provision authorities and the « private » means of protection fail, one after the other. Their failure follows the shock of a complex system of economic, social and demographic relationships which in normal years, and even in « normal crises », regulates the flow of food and other resources within communities; from rural to urban areas; from city to city; from state to state; etc<sup>55</sup>.

Duration, then, is a key factor in understanding why the famine of the 1590s probably came to be the worst ever faced by Italian populations, at least since the Black Death and maybe since a much earlier period. The other key factor is extent: as seen in section 1, crops were ruined all over Italy, forcing the Italian states to be creative in looking for food (most of the traditional provision paths having failed and market forces alone being unable to provide solutions).

Feeding the large cities flourishing close to the shores of the Mediterranean had represented a problem since ancient times and required the organisation of the distribution of food over long distances<sup>56</sup>. In the case of Italy during the sixteenth century, the rising power of the Turkish empire was making it increasingly difficult to get grain from the Black Sea; hence the rising importance of the Baltic market, which made it necessary to buy the services of English or Dutch merchants. These sources of food, however, were secondary with respect to the control of the *contado* which the *Annone* were enforcing with increasing effectiveness<sup>57</sup>. In the course

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53. About the nature of the reserves, their economic status and their distribution among institutions and private owners, see R. CORRITORE, 2007 and G. ALFANI, 2010a.

54. SLICHER VAN BATH, B. H., 1977.

55. The fact that provision was based upon ancient systems of economic, social and demographic interaction is not the same as stating that the food markets in Italy, or even more specifically in Emilia, presented a large degree of integration. As a matter of fact, for all of the Early Modern period most of the food produced continued to be consumed within the parish, or within the local system composed of a city with its *contado*. According to the theory of the overlapping circles proposed by P. CHAUNU, 1974, 90% of the product was consumed within the parish circle. Only the remaining 10% entered the market: that of the relevant city. We can think of the space related to this circle as a city-*contado* system. Only 10% of this 10%, or 1% of the total, travelled the long distance, often by sea. By and large this picture well describes our case. It must be pointed out, though, that during severe famines these long-distance connections acquired key importance.

56. MARIN, B. & VIRLOUVET, C., 2003.

57. ALFANI, G., 2010a.

of the sixteenth century such control was evolving towards more complex systems, aimed at controlling the circulation of food in the entire territory of the State<sup>58</sup>. While this general process was completed only in the seventeenth century, in many places the famine of the 1590s provided the fundamental stimulus to introduce key innovations, like in Bologna where new laws introduced in 1593 gave the authorities powerful instruments to closely monitor the grain market and the process of bread production<sup>59</sup>. The innovations were not introduced in this period by chance, but because the crisis had made apparent the faults of the existing institutions. These faults, furthermore, would prove very expensive for the public finances, drained by the effort of finding grain abroad at whatever price. For the case of Modena, Pierluigi Basini<sup>60</sup> calculated that, during the famine, the city spent the enormous sum of 3.5 million *lire* to buy foreign grain. At the end of the crisis the city was completely drained of gold and silver, and was deeply indebted not only to the Duke, but also to religious institutions and to wealthy individuals. A similar situation was to be found in much of Italy, both in cities and in the countryside, and was further aggravated by the inability of people to pay tax – given that they had spent all of their money to buy what food was available. For example, in Finale in Emilia the revenues from the *colta ordinaria* fell by 14% in 1590 compared to the previous year, and in 1591 shrank by another 54.5%<sup>61</sup>.

So deep and widespread was the crisis, and so deeply compromised were public and private finances, that we could wonder how Italian economies ever recovered. In the case of Modena, the (forced) good will of the Dukes of Este, who accepted delays in repayment of the debt, was a key factor. This, however, would not have been enough had the local economy been any less strong and dynamic. Instead, at the end of sixteenth century the silk sector was flourishing, as well as the trade of wine, spirits and others<sup>62</sup>. For reasons of space it is impossible to further develop this point here. Suffice it to say that the situation of Modena can be taken as representative of much of Italy. After the famine, the peninsula showed an impressive economic dynamism which is very badly described by Cipolla's definition of « Indian summer ». On the contrary, it is proof of the fact that Italian economies were still sound and that their crisis, when it finally came,

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58. PULT QUAGLIA, A. M., 1982; PARZIALE, L., 2003.

59. GUENZI, A., 1978. See, for some other case studies, MASSA, P., 1999 (Genova); BASINI, G. L., 1970 (Modena); ZANETTI, D., 1964 (Pavia).

60. BASINI, G. L., 1970.

61. CATTINI, M., 1977, p. 192-193.

62. BASINI, G. L., 1970, p. 73-74.

did not have its roots in the « mistakes » made in the decades following the end of the Wars of Italy<sup>63</sup>.

### 3. A closer look to the countryside: Nonantola

Nonantola is a large rural town close to Modena and, like Modena, was part of the Duchy of Ferrara ruled by the Este family (in 1598, when Ferrara became part of the State of the Church, Modena itself became capital of the Duchy). In 1629, Nonantola had a population of 3.439 inhabitants<sup>64</sup>: a remarkable size, which is surely close to that already reached before the crisis of the 1590s. Situated in the lowlands of the Po plain, Nonantola was characterized by the presence of vast common lands, which still survive today in the shape of a *partecipanza agraria*. It is not by chance that the rights to the use of the commons, which previously were given to all the inhabitants of the community, became hereditary among a well defined number of « original families » in 1584: a period when the strain upon the land and the resources generated by population growth had already become apparent, and the original families were looking with increasing concern at the continuous influx of migrants aspiring to the right to use the commons<sup>65</sup>.

At the time of the crisis of the 1590s, the presence of the commons proved insufficient to preserve the population from hunger. In this circumstance at least, Nonantola's unusual agrarian structure and land distribution do not make it an exceptional case during the famine<sup>66</sup>. On the contrary, Nonantola can be taken as an example of a lowland rural community, focussed on the production of wheat and wine, which was struck badly by the famine. In 1591-1592, when the average reduction in births in the parts of Northern Italy affected by the crisis was 45.5%, in Nonantola it amounted

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63. ALFANI, G., 2010a.

64. Estimated on the base of a salt tax register (City Archive of Nonantola, Ruolo di popolazione - Boccatico, 1629).

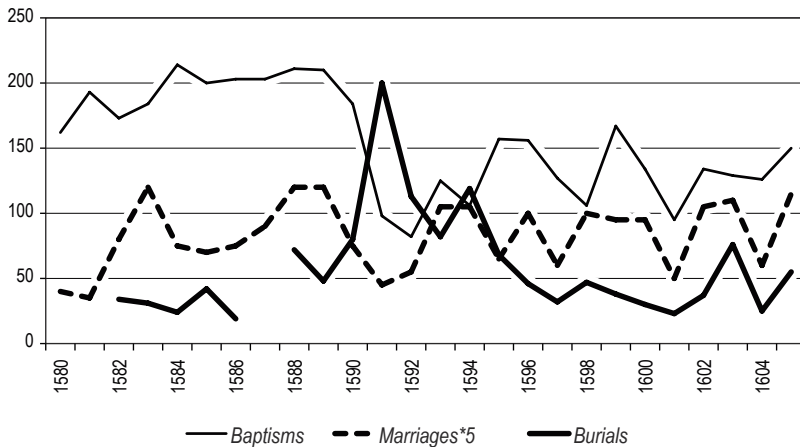
65. ALFANI, G., 2007b; 2007c; 2011c.

66. One could think that the availability of common resources allowed peasants to survive better in time of famine. This hypothesis has been tested and proved false (ALFANI, G., 2004c; 2007b): probably because the availability of such resources was over-compensated by incentive to immigration (at least until the closure of the books in 1584 and the exclusion of foreigners from the use of the commons ) and disincentive to emigration, similarly to the findings of L. DEL PANTA, V. FIORENTINI & P. MORTONI, 1999, in their case study of the nearby community of Cento, also hosting a *partecipanza agraria* (emigrating meant losing the right to benefit from the common lands). On the other hand, it is possible that the presence of large commons was coupled with an unusual abundance of small properties, notoriously more fragile than average in times of crisis. This second hypothesis is as yet untested.

to 65%. Even more impressive is the trend in mortality, which it is possible to study thanks to rare parish registers of burials beginning in 1574: well before the *Rituale Romanum* of 1614, which made such registers mandatory. These early registers also have the bonus of recording the age at death. It is possible to calculate, then, an increase in burials of 346% in 1591-1592. Graph 3 shows the dynamic of the main vital events affected by the famine: births (baptisms), deaths (burials), and marriages.

The case of Nonantola is representative of all great demographic crises: whose effects do not only concern mortality but also affect fertility and marriage. As shall be seen, the disruption caused by a severe famine on social, economic and demographic systems is further proof that thinking of a demographic crisis solely in terms of mortality crisis<sup>67</sup>, albeit useful and sometimes unavoidable, is nevertheless insufficient to fully understand the nature of the crisis itself.

Figure 6. *Baptisms, burials, marriages in Nonantola, 1580-1605*



Source. Parish registers of baptisms, burials and marriages, Parish archive of St Michele of Nonantola.

Figure 6 allows us to describe the famine from the point of view of the trend of vital events. At the beginning of the crisis, when scarcity begins to be felt, there is a drop in births which is due to the reduced fecundity of starving men and women, to a decrease of sexual desire, and maybe also

67. About the definition of demographic crisis see G. ALFANI & V. GOURDON, 2009.

to conscious efforts of couples to avoid pregnancies<sup>68</sup>. At the same time, with a perfectly matching chronology, there is a decrease in the number of marriages: it being common, due both to rational thinking and to a social and cultural context which required a marriage rite to be a rite of plenty, to avoid their celebration in times of scarcity. Only later do we find a marked increase in deaths. This is due to the fact that the human body has an exceptional capacity to survive prolonged starvation. Actually, the number of people dying literally « of hunger » was usually very limited, more usual causes of death being « complications » and in particular infectious diseases (such as typhus) or poisoning caused by consuming inedible or rotten ingredients<sup>69</sup>.

The fact that death by hunger comes only after a long and extreme condition of starvation explains why only in the worst famines do we find a generalized increase in the death toll. To individuate a « normal » famine, the variations in baptisms and marriages are much more reliable indicators. The exceptional character of the crisis of the 1590s, then, is confirmed by the sharp rise of mortality which comes after the first year of scarcity. As shown by Figure 6, the peak in deaths is reached in 1591 when 200 burials are celebrated: equal to a mortality rate that can be estimated to be slightly higher than 60 per thousand. Mortality remained high the following year; began to decline in 1593; but peaked again in 1594 when, with 119 burials, a second peak was reached. This chronology suggests that while food provision authorities were gradually restoring the social and economic order in the cities, the conditions of the countryside were still precarious and we know that the year 1594 was one of crisis for all the lowlands around Modena<sup>70</sup>. As a matter of fact, during the whole of the Early Modern period only plagues caused worse crises in Nonantola. Even though epidemic crises were much shorter in duration, their death toll was much higher: especially at the time of the worst of all, the pandemic of 1629-1630 when mortality rates touched 260 per thousand in Nonantola while elsewhere in Northern Italy even higher rates were reached<sup>71</sup>.

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68. On the complex biological and social-demographic consequences of a state of starvation, see M. LIVI BACCI, 1991; 1998.

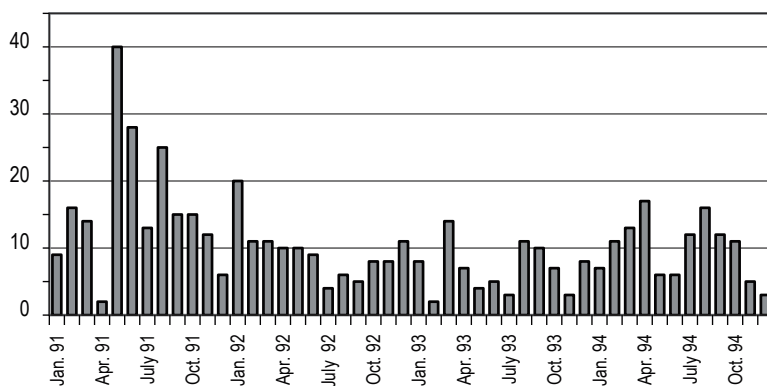
69. LIVI BACCI, M., 1998; ALFANI, G., 2010a.

70. CATTINI, M., 1988.

71. ALFANI, G. & COHN, S. K., 2007b; ALFANI, G., 2010b; 2011b.

Analyzing the monthly distribution of burials in the years 1591-1594<sup>72</sup> in Figure 7, we find an absolute maximum in May 1591. As already underlined, it is during this year that famine killed the largest number of people (even if migrations and vagrancy make it difficult to compare deaths with the number of residents at each moment). It is a sure fact that the period of acute scarcity faced by the population in 1591 exhausted what capacity was left in the local agrarian and social-economic system to compensate for fluctuations in food production. As a consequence, in the following three years mortality closely followed the crop cycle. The peaks in burials are to be found in the months immediately preceding the new harvest (March-June). The harvest, even when it is scarce, does not fail to alleviate the situation albeit for some months only. This trend in mortality follows closely that of the seasonal prices in the urban market, even in normal years<sup>73</sup>. On the other hand, it is a well known fact that, during a famine, the apparent abundance at harvest time combines with the widespread psychological instability that is one of the consequences of prolonged starvation<sup>74</sup>, inducing people to waste what they should save, both to provide for the alimentary needs of winter and spring months and to preserve seeds for the next crop.

Figure 7. *Monthly burials in Nonantola (January 1591-December 1594)*



Source. Parish Archive of St Michele of Nonantola, Parish Registers of Burials.

72. Even if mortality was very high already in 1590 (80 burials), for that year the scarce quality of the records make it impossible to distribute burials on a monthly basis.

73. ZANETTI, D., 1964, p. 108-111.

74. CAMPORESI, P., 1981; 1985.



As already explained, mortality is a very limited perspective from which to consider subsistence crises that have much more complex demographic consequences. In the case of Nonantola, however, the availability of exceptional sources invites further development of the analysis of mortality: especially considering that the relationship between hunger and mortality is a complex one which still has many obscure points. As Andrew Appleby underlined some decades ago<sup>75</sup>, not only is it difficult to define whether mortality was due to hunger or to concomitant epidemics, but the causal relationship between them needs to be specified. It is not sure at all that epidemics of diseases such as typhus, frequent during famines, were due to starvation. Quite possibly it was mobility induced by hunger that was responsible for outbreaks of contagious diseases: the poor went to the cities looking for aid, bringing the disease with them or favouring its appearance by causing a situation of overcrowding. On the other hand, what we find frequently in Italy during the famine of the 1590s, with poor and « useless mouths » being expelled from the cities in order to reduce overcrowding and the risk of epidemic, is the diffusion of infectious diseases in the countryside<sup>76</sup>.

The rare registers to be found in Nonantola, by including age at death, give us precious information about the structure of mortality during a severe famine and also offer hints about the main causes of deaths. Table 1 compares the death structure in three different periods: the peak of the crisis in 1591-1592; the pre-crisis period 1588-1589 (it is impossible to include earlier years because registration of age at death becomes systematic only after 1587), and the post-crisis period 1594-1599. These two « normal » periods allow for a double check when trying to define the specific characteristics of the mortality in years of acute hunger. In every period, some burials are recorded without age at death; the vast majority of registrations, however, is complete<sup>77</sup>.

In the years 1591-1592, all age groups were affected by higher-than-normal mortality, as clearly shown by the yearly averages for the three periods. The maximum difference in yearly deaths between the famine and the pre- or post- crisis periods, however, is to be found among people aged 4 to 60. What is left is the newborn, the very young and the very old. As a matter of fact, looking at the frequencies (the share of total deaths for each age

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75. APPLEBY, A. B., 1977; 1978.

76. ALFANI, G., 2010a.

77. In general, books of burials did not include the stillborn. They did include children dying immediately after birth if they had received the sacrament of baptism, which in situations of emergency (in *casu necessitatis*) could be performed by the midwife.

group) we find an impressive reduction in the share of deaths related to the newborn. While in « normal » years babies below the age of one accounted for a third of the total (34.3% in 1588-1589 and 32.4% in 1595-1599), at the peak of the famine the figure was just 14.1%. This fact, however, should be read in the light of the age structure of the population: considering that in 1591-1592 births reduced by 65% compared to pre-crisis level, the actual mortality rates of the newborn had probably increased in their turn. After the crisis, the age structure of mortality did not immediately return to its pre-crisis condition, mainly because the age structure of the population had changed: in 1595-1599, given the lack of births in the earlier years, there were few infants in the age groups 1-3 and 4-10, and consequently they accounted for a smaller than normal share of overall deaths.

Table. 1. *Age at death in Nonantola, 1588-1599*

	Burials	TOT with age	<1	1-3	4-10	11-20	21-30	31-40	41-50	51-60	61-70	>70
1588-1589	120	102	35	17	13	4	4	4	4	13	7	1
1591-1592	313	262	37	20	41	26	25	32	23	35	12	11
1595-1599	231	219	71	12	11	21	20	19	20	25	9	11
Yearly averages:												
1588-1589	60.0	51.0	17.5	8.5	6.5	2.0	2.0	2.0	2.0	6.5	3.5	0.5
1591-1592	156.5	131.0	18.5	10.0	20.5	13.0	12.5	16.0	11.5	17.5	6.0	5.5
1595-1599	38.5	43.8	14.2	2.4	2.2	4.2	4.0	3.8	4.0	5.0	1.8	2.2
Frequencies:												
1588-1589		100.0	34.3	16.7	12.7	3.9	3.9	3.9	3.9	12.7	6.9	1.0
1591-1592		100.0	14.1	7.6	15.6	9.9	9.5	12.2	8.8	13.4	4.6	4.2
1595-1599		100.0	32.4	5.5	5.0	9.6	9.1	8.7	9.1	11.4	4.1	5.0

*Source.* Parish archives of St. Michele of Nonantola, Parish Registers of Burials.

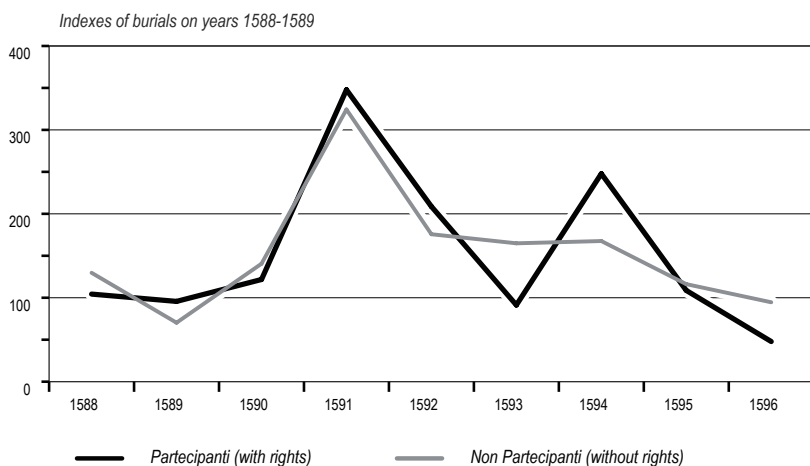
The construction of age-specific mortality rates requires further refinement of the dataset and will not be undertaken here<sup>78</sup>. The available data already suggests a key conclusion: that sharp increases in mortality affected all age groups, and that during the year of the crisis the « natural » order, with the very young dying much more frequently than the adults, is reversed by adult supermortality coupled with reduced fertility. As it is, how-

78. In particular, to calculate mortality rates information about the age structure before, during and after the famine would be needed. This information is not currently available and will require further archival research to be collected.

ever, the data does not allow a clear hypothesis about the cause of death and the occurrence of infectious diseases. To this end, deaths should be linked to households in a way similar to that attempted for the plague striking Nonantola in 1630<sup>79</sup>. Such a task presents archival and methodological difficulties still to be resolved and will be the object of a specific future work.

The database I built for Nonantola also allows for analysis of mortality rates per social group. Since this was a rural town close to an important city, most of the notables having property or other economic interests in Nonantola did not live there, and thus were not recorded in its books of burials. The only analysis of mortality per social group having statistical relevance, then, is the one that separates the *partecipanti* (people having the right to the benefit of the common lands) from the *non partecipanti* (all the others). As shown by Figure 8, however, this key distinction within Nonantola society did not exert a significant influence on mortality during the famine and will not be discussed further here.

Figure 8. *Burials of partecipanti and non partecipanti, 1588-1596*



Source. Parish archives of St. Michele of Nonantola, Parish Registers of Burials.

It must be stated clearly that the trend in burials/deaths is not only an index of the demographic tendency of the community, neither it is simply the mirror of the cycle of reserves and crops. Instead, it is representative of the progressive failure and crumbling of a complex demographic, economic

79. ALFANI, G. & COHN, S. K., 2007a; 2007b.

and social system whose components were strictly interrelated. An increase in deaths, then, is surely the sign of the failure of the harvest and of the exhaustion of reserves, but it is also the result of the failure of the safety nets of help and solidarity provided by the State and by the community. Furthermore, it is affected by the increased violence generated both by suspicion and envy towards neighbours, and by the presence of brigands and vagabonds in hiding near the community, waiting for an opportunity to steal its meagre reserves.

Many examples of this protracted state of violence are to be found in the books of the Captain of Nonantola<sup>80</sup>: thefts of food; of small animals (pigeons, chickens...) as well as of cows and other large animals; disputes among neighbours over almost anything; brawls; wounding; homicides. On top of these, nightly armed assaults on isolated houses, perpetrated by the starving, desperate people roaming the countryside. An example will suffice: that of Marchino Borsari who, in March 1591, was assaulted in his own house by a group of armed foreigners. Here is the description he gave to the Captain of that terrible night:

« Last Thursday night, when it had already struck seven o'clock, I and my wife being asleep in this bed, I heard a whistle at a window [...] I immediately jumped out of bed to see what it was [...] and dressing myself as best I could with this blanket you can see, I encountered one armed with a wheel harquebus and a sword, who attacked me and straightaway another unarmed man arrived, who took a pitch fork that was there and thrust it in my shoulder and passed as far as the bone, and all of a sudden two others arrived unarmed and jumped on me and tied my arms behind my back, and then with a thin rope tied me up by my testicles, attached the rope to the iron that you see attached to the beam [...] above here, and tormenting me for a long time demanded money, and when I told them I had none they replied that they knew my affairs better than I did, and so taking [some] of my sacks they took away wheat flour for three measures, which I had in a trunk, more than forty unbaked loaves of grain[...] and also a harquebus and a silver ring with a red stone [...] twenty-four salamis [...] ».<sup>81</sup> (my translation)

The case of Marchino is only one among many, and the authorities struggled to maintain order. If they had hoped that the four people hanged on the main square of Nonantola on 11 March 1591 would be an effective warning<sup>82</sup>, the episode mentioned above, reported 18 March, shows that

80. Town Archive of Nonantola, Archivio aggregato-Giusdizienza di Nonantola, Atti criminali del Capitano di Ragione; *Libri Querelarum*, January-February 1592.

81. *Libri Querelarum*, 18 March 1591.

82. Parish Archive of St. Michele of Nonantola, Paris registers of burials, 11 March 1591.

they were mistaken. On the other hand, the main threat came from outside the community.

The case of Nonantola makes it apparent that the famine caused the short-circuit not only of the institutions, but of the very way of life in the community. From this perspective, the case is representative of the general situation of the Italian countryside. When, after 1594, the crisis ended, population growth began again and the demographic damage caused by starvation, typhus (etc.) was mended surprisingly quickly. The social and economic breakdown caused by the famine, however, had long-lasting effects. Near Nonantola, in the rural town of San Felice sul Panaro, the famine had reduced many families to a condition of poverty. They had to sell their houses, automatically accepting a drop in their social status, in favour of a few rich people: mainly « foreigners » from the city of Modena, well provided with both grain and coin. The increase in concentration of wealth was followed by a growing social and political closure of the community, where an impoverished élite tried to preserve its prestige, the economic decline notwithstanding<sup>83</sup>. Similar processes, of which the *accaparratori* (hoarders) were the main beneficiaries, in the 1590s are to be found all over Italy.

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The extent and duration of the subsistence crisis affecting not only Northern Italy but also most of the peninsula in the years 1590-1593 are what makes it exceptional: being the worst famine since the Black Death at least. Its consequences were not purely demographic, but are better understood as a « system shock » affecting demographic, social and economic structures: a shock that occurred when the crisis continued beyond expectations, causing the depletion of all reserves stored by individuals and food provision institutions and authorities, thus leading to the final failure of the institutions themselves.

While provision institutions are specific to the urban environment, their activity must be studied in the perspective of the relationship city-countryside: both because one of their main aims was to control the food produced in the *contado*, and because the destiny and behaviour of the rural people during the famine can not be understood without taking into account their reliance upon the cities to survive in times of dire need.

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83. CATTINI, M., 1984.

During a severe famine, in fact, the « natural » order, according to which the countryside feeds the city, is reversed: with rural population depending on the cities for their survival, at least until the provision authorities decide to reserve what food is left to the citizens, expelling the poor and the peasants from within the city walls. These unfortunate people, then, begin wandering the countryside or migrate, following delusions of plenty which is just beyond their reach. This is the destiny, for example, of the rural population of Emilia in the 1590s.

The social disruption and the situation of violence and turmoil that characterize the famine years are also key in understanding the nature of the crisis, as shown by the case study of Emilia and of the rural town of Nonantola in particular. Here, violence, theft and murder made it all the more difficult for the community and its authorities to counter-balance the failure of the traditional networks of solidarity and reciprocal help, and to keep in check a crisis whose gravity is clearly shown by the sharp increase in burials. Not last among the proofs of the ability of a severe famine to deeply disrupt traditional equilibria, we find a surge in adult mortality that temporarily reverses the usual prevalence of infant mortality over all other components of mortality. The case study of Nonantola, however, only strengthened the conclusion reached by considering Emilia or even the whole of Northern Italy: Old Regime famines should not be analyzed solely as mortality crises, or even as demographic crises (which include other factors such as fertility, marriage and migration), but as situations of stress of agrarian, demographic, social and economic structures, which in the worst cases result in the short-circuit of the whole system. In this perspective, the famine is not solely the result of the combination of climate, agrarian technology and demographic density, but is the much more complex product of a « human failure » than can be fully understood only by taking into account also institutions, culture, social and economic behaviour, and even psychological factors.

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