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Cheating the angel-makers: surviving infant abandonment in nineteenth-century Italy

DAVID I. KERTZER AND MICHAEL J. WHITE*

Abandonment of newborn babies was widespread throughout much of Western Europe over the past two millennia (and, very likely, before as well). Until the past 500 years or so, many of these babies were simply left by the side of the road, discarded atop mounds of refuse, or placed in fields or woods.¹ Beginning around the 1300s – first in Italy and soon spreading to France, Spain, Portugal and elsewhere in what was to become Catholic Europe – formal institutions were created to take in abandoned babies.

The primary rationale given for this development was concern for the lives of the huge numbers of babies who were being abandoned. The desire to save the babies' souls through baptism also played a major ideological role. Despite John Boswell's rosy interpretation of the survival of the abandoned children of earlier times (evident in his 1988 book's title, *The kindness of strangers*) there are good reasons for believing that the great majority of such abandoned babies died in their first hours or days of life.²

By the eighteenth century, there were hundreds of foundling homes, big and small, in Western Europe, taking in tens of thousands of babies every year. Indeed, these homes reflected a new attitude about civic responsibility for social welfare, associated with the creation of various charitable institutions. Foundling homes could often boast of splendid buildings, most spectacularly in Florence, the pride of the 'enlightened' nobility, and very large landed endowments left to them to do their good deeds. They organized a massive network of assistance to facilitate their

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work, involving parish priests, mayors, medical examiners and, most importantly, women who would take in the foundlings as wetnurses and foster mothers. In these efforts, the foundling homes spent huge amounts of money.

A disturbing note is introduced into this piece of civilization's progress, however, by the charges increasingly heard in the nineteenth century about what took place at these homes. Far from serving to save the lives of the unfortunates left to their mercies, critics argued, the foundling homes served, in effect, to kill them. 'Slaughter-houses', 'tombs', 'legal infanticide' and other such epithets were hurled at the foundling homes. The head of Milan's huge foundling home at mid-century recalled the then common view of the homes as institutions for 'killing children at public expense'.³ Charges such as these were to play a significant role in the drastic reduction in number of foundling homes that would take place during the second half of the nineteenth century in much of Catholic Europe.⁴

The question, then, that we address in this article is this: were such charges fair? Is it true that the foundling home system failed in its mission? Just how great was the mortality of the babies abandoned to the system's care, and what can be said about how and why the system failed, if it did? In addressing these questions, we focus on the case of Italy in the first seven decades of the nineteenth century, the period when the system both reached its historical apex, in terms of numbers of babies abandoned to it, and, under increasing attack, began its decline. We inquire in special detail into the experience of one Italian foundling home, that of Bologna.

Kertzer has elsewhere explored the historical development of institutionalized infant abandonment in Europe and shown the important role played by Italy in this process.⁵ This was an officially sanctioned system for the anonymous abandonment of babies and for their subsequent care. While we focus on Italy here, we should note that in the early nineteenth century many other Catholic countries (for example, France, Spain, Portugal, Belgium, Ireland, Poland and Austria) were experiencing substantial infant abandonment and operated their own systems of foundling homes.⁶

THE INFANT ABANDONMENT SYSTEM IN NINETEENTH-CENTURY ITALY

In investigating what happened to abandoned babies in Italy in this period, it is important to keep in mind that the modern Italian nation was only established in 1860 (and incorporated Rome only in 1870). For the years before 1860, when we refer to 'Italy', we do so loosely, for Italy was

not a political entity at the time. What now composes the Italian nation was then divided into several different polities, the most important of which were the Kingdom of Piedmont; Lombardo-Veneto, which was affiliated with the Austrian empire; the Papal States; the Duchy of Tuscany; and the Kingdom of the Two Sicilies (Kingdom of Naples). Each, of course, had its own laws, police and army, and its own social welfare policies. What is striking, in this context, is the similarities in the foundling home system found throughout much of what is now Italy (Sardinia being the major exception).

A cornerstone of the system of infant abandonment in Italy, as in many other parts of Europe having institutionalized abandonment, was the desire to protect the anonymity of the woman abandoning her baby. (It was inevitably the mother, and not the father, who was seen as responsible for the baby who was being abandoned, and thus for the act of abandonment itself.) This anonymity was regarded as essential to the survival of the baby. The foundling homes sought to relieve the mother of the 'fruits of her shame', and hence protect her family's honour. According to the thinking of the day, failure to provide for anonymous abandonment at the foundling home would lead unwed pregnant women to abort their foetuses, or commit infanticide. Likewise, illegitimate babies would be at risk of being abandoned in the old way, where an infant was left in a remote area and would almost certainly die, rather than being deposited at the foundling home, where it could survive.

Babies could be left at the foundling home in various ways. In many areas, midwives brought the newborn directly to the foundling home where, however, they refrained from identifying the baby's parents. In addition, there developed in Italy, and then spread to France and elsewhere in Europe, the system of the wheel. The wheel consisted of a cylinder containing a kind of cradle, and allowed a baby to be placed in it from outside, with someone inside turning the wheel and bringing the baby in without ever seeing the person who had brought it.

By the mid-nineteenth century there were 1,200 such wheels in Italy. While virtually all foundling homes had them, most wheels were located in communities that had no foundling home. In the latter cases, the wheels typically served as waystations on the baby's trip to the nearest foundling home (or, more accurately, nearest in the same political jurisdiction), with local authorities arranging the transportation. However, in the south of the country, where wheels were particularly numerous, they were often part of another system, which involved no foundling homes at all. In these cases, the local authorities in the communities where the wheels were situated directly placed the baby with a local wetnurse.⁷

This latter system, widespread in southern Italy and Sicily, has attracted

little scholarly attention, but is of importance to our topic, since there is evidence that babies dealt with in this way were much more likely to survive their first year than were babies taken in by the foundling homes. Our attention in this paper, though, is on the foundling home system, which was responsible for the majority of abandoned babies in Italy.

Where foundling homes existed they functioned in much the same general fashion. Attempts were made to place the babies in the homes of lactating women, typically in the countryside. While the baby awaited placement, it was nursed by a woman who worked for the foundling home (though not necessarily for pay) and resided in the institution.

The major exception to this was the massive foundling home of Naples which, due to lack of sufficient funding to pay external wetnurses, ended up trying to care for the bulk of its abandoned babies within the foundling home itself. It is no coincidence that the Naples foundling home had horrendously high infant mortality. In 1819, for example, only 256 of the 2,091 babies abandoned there were placed with an external wetnurse. Of the remaining 1,835, only 76 lived to their first birthday.⁸

Italian foundling homes in the nineteenth century were generally lay institutions, run by a private governing board. However, they had close ties both to the Church and to the state. Funding typically involved a combination of private sources and governmental contributions, but the homes were continually pleading for more funds to be able to fulfil their mission. The principal costs were generally not those associated with the care of the infants within the foundling home, but rather the payments made to the foster families with whom the foundlings were placed. Such families received monthly stipends, which declined as the children aged, and could last up to fifteen years or even more in some parts of the north; however, in the south such payments were for much shorter terms.

Conditions in the foundling homes were widely recognized as unhealthy for the babies left there. Diseases spread from child to child and, most importantly, a shortage of wetnurses, who were frequently in poor health themselves, led to malnutrition, weakness and starvation. Wetnurses in foundling homes typically were responsible for at least two foundlings, and often for three or even more. Great emphasis was thus given to placing the babies quickly with external wetnurses. Such placements were not always easy, for a number of reasons. The pay the foundling home could offer was not high, and the potential pool of wetnurses was limited. The woman had to be judged to have good milk (hence, to have given birth relatively recently), yet most foundling homes refused to assign foundlings to women who were still nursing their own babies. The ideal wetnurse, then, was a young married woman whose most recent child had died in its first months.⁹

A final problem in the recruitment of external wetnurses was the transmission of syphilis. Syphilis was not uncommon among the babies in the foundling homes of the large cities (where substantial numbers of prostitutes' babies joined others at the wheel), and the disease could be transmitted through nursing from baby to wetnurse. Because it was often impossible to distinguish which newborns were syphilitic, officials were left with the choice of either keeping all the children under observation in the foundling home for a period of months, in which case most would die, or sending the babies out in their first days of life and risking infecting some of the external wetnurses with syphilis. Most foundling homes favoured the latter choice, and tales of foundlings infecting their wetnurses with syphilis proved a major disincentive to prospective wetnurses.¹⁰

The movement against the foundling home system in nineteenth-century Italy was closely linked with the opposition to anonymous abandonment. Because of this, the wheels attracted the greatest attention, for where they functioned effectively they embodied a commitment to anonymous abandonment. In other areas, such as Bologna and Ferrara, anonymous abandonment took place primarily through regular foundling home admissions offices. Here, babies were brought to the foundling home by third parties (usually midwives) who did not reveal the babies' parentage. In these areas, the movement against foundling homes was directed against anonymous admission itself and against the corollary ideological pillar of the system, which held that unmarried women should not be permitted to keep their children.¹¹

LEVELS OF INFANT MORTALITY AMONG ITALIAN FOUNDLINGS

Just how successful were the Italian foundling homes in the nineteenth century in ensuring the survival of their little charges? A first approximation can be gleaned from the investigation undertaken by Count Luigi Armaroli in the 1830s. He sent out a questionnaire to all foundling homes in Lombardy-Veneto and the Papal States, and received the replies shown in Table 1 in answer to his question regarding the number of foundlings dying in their first year.¹²

There is reason, however, to believe that either some of the responding foundling home officials were trying to place a rosier cast on their actual experience to make themselves look better or they did not have their records organized in such a way as to permit an accurate response. For example, according to Armaroli's data, Imola's infant mortality rate (IMR = deaths in first year of life per 1,000 live births) of 354 stands out amongst the Papal States for its favourable survival experience. Yet Angeli, working with the archives of the Imola foundling home, found an

TABLE 1

Infant mortality at Italian foundling homes (expressed as deaths in the first year of life per 1,000 live infants left at foundling homes)

<i>Lombardy-Veneto</i> (1823-1832)		<i>Papal States</i> (1823-1832)	
Bergamo	358	Bologna	478
Brescia	392	Faenza	556
Como	315	Ferrara	637
Cremona	460	Forlì	549
Mantua	468	Imola	354
Milan	436	Perugia	632
Padua	529	Ravenna	456
Trieste	346	Rimini	361
Venice	336		
Verona	253		
Vicenza	674		

Source: Archivio di Stato di Roma, MSS 196-98, fondo Luigi Armaroli.

TABLE 2

Infant mortality among foundlings in Brescia

<i>Period</i>	<i>Mean number abandoned/ year</i>	<i>IMR</i>
1811-1814	428	406
1829-1838	543	372
1846	564	332
1852-1860	701	506
1866	915	601

Source: S. Onger, *L'infanzia negata: storia dell'assistenza agli abbandonati e indigenti a Brescia nell'ottocento* (Brescia: AIED, 1985), 81.

IMR of 625 in the period 1800-1819.¹³ While it is, of course, possible that infant mortality declined this dramatically in Imola over the next decade or so, this seems implausible.

Indeed, one of the most notable findings about the course of foundling infant mortality during the nineteenth century is that there was no monotonic pattern of decline. A good example is provided by the northern industrializing city of Brescia (see Table 2), whose relatively favourable IMR is seen in Table 1. Onger, in noting the deteriorating situation over

the course of the nineteenth century, attributes it to the sharp increase in number of babies abandoned over these years, a phenomenon found throughout most of northern Italy, and the consequent overcrowding of the foundling home and lack of wetnurses.¹⁴

By the end of the period we are investigating here, in 1870, when all areas came under the same national government, there remained great differences in the ability of local systems to keep foundlings alive, a fact related to the failure of the new Italian state to enact any standard system for foundling care. In the 27 provinces for which we have data in 1870, the foundlings' IMRs range from 269 per 1,000 live births in Milan to 602 in Perugia, with values generally clustering in the 400s and 500s.¹⁵

The mortality experience of Italian foundlings, of course, can only be fairly judged in comparison with that of neighbouring babies who were not abandoned. In general, Italy's infant mortality, when seen in the European context, was rather high in the nineteenth century, with sustained declines coming only in the latter third of the century.¹⁶ In northern Italy, infant mortality rates increased from values around 250–60 per thousand in the mid-1600s and remained at a higher plateau throughout the rest of the eighteenth century. By the time of Unification, in the early 1860s, the IMR for Italy as a whole remained at 270,¹⁷ though this began a swift decline over the next several years.

In contrast with later developments, when the north modernized demographically at a more rapid rate than the south, the pre-Unification period saw many of the northern Italian regions with substantially *worse* infant mortality experiences than those found in the south. In Veneto, for example, in the northeast, values of IMR ranged between 334 and 357 per 1,000 from 1817 to 1837, though these sank dramatically after Unification, dropping below 200 by the 1880s.¹⁸ The zone around Bologna, too, had relatively unfavourable conditions for infant mortality in the first part of the century. The area corresponding roughly with today's province of Bologna had an IMR of 319 per 1,000 in the last years of Napoleonic occupation (1811–1812).¹⁹ Even in the following years, during the politically and militarily quieter days of the Restoration of Papal State rule, values for IMR in the Bologna area ranged in the high 200s.²⁰ Following Unification, the new region of Emilia Romagna, with Bologna as its capital, still had, in 1863–1866, an IMR of 255.²¹

FOUNDLINGS AT RISK

The high rate at which foundlings died was due to a number of factors, not all of which involved the quality of care provided by the foundling homes. Indeed, foundling home officials often argued that the fault for the carnage was not theirs or, at least, not entirely theirs. Beyond their constant complaint of lack of adequate funding, resulting in unhygienic conditions in the foundling homes and difficulty in hiring wetnurses, foundling home officials and other observers of the time (both groups having in common the fact that they were all male) tended to blame women for the babies' deaths. The women in question fall into two categories: the babies' mothers and the wetnurses.

While unwed mothers were not blamed for abandoning their babies, indeed, in much of Italy in this period they were forced to do so, they were still blamed for producing sickly children.²² In the words of one observer, describing illegitimate births:

the desire to preserve the baby is entirely lacking; to the confusion that reigns around the woman about to deliver is added the omission of the care and solicitude necessary for the newborn, who is viewed not only as a useless encumbrance, but also as the troublesome, living testimony to the mother's shame. Having been conceived, developed and come to light under such auspices, the baby cannot help but in general be lacking in physical robustness... Thus it is hardly surprising that they die in larger numbers than those born from legal union.²³

Suspicion that desperate women were apt to engage in efforts to abort their pregnancies fuelled the conviction that they should be held responsible for their weakened infants' subsequent deaths.²⁴

Simply to get to the foundling home, the baby often had to make an arduous journey. The provincial medical director of Ravenna describes five-day trips to the foundling home, during which the babies' hunger was sated by use of cooked apples. In Modena, they were given pieces of chestnuts to chew. The people hired to transport the babies to the foundling home were, not surprisingly, referred to by the name with which they had been provided in France: *faiseuses d'anges* (angel-makers).²⁵

Between the inauspicious circumstances of their gestation and birth, and the perilous journey so many of them made to the foundling home, it was to be expected, argued foundling home officials, that the children they took in should experience a high mortality rate. To this was added an ambivalent attitude toward the women who offered their services as paid wetnurses for the foundlings. The women who could be lured into serving as internal wetnurses in the foundling homes were likely to be drawn from the unhealthiest and least educated segment of the population. Difficulties in attracting internal wetnurses led some foundling homes,

including that in Bologna, to enact policies that would force impoverished unwed mothers to serve terms of up to one year of forced service as a wetnurse inside the foundling home.

While the external wetnurses, that is, those who took the foundlings to live with them in their rural homes, were seen in a more positive light, they too were viewed with suspicion. These suspicions centred on their perceived tendency to defraud the foundling homes, but also reflected a concern that the quality of child care they provided was poor. In this, the Italian officials shared the attitudes of their French counterparts. In France, the wetnurse business went well beyond foundlings; indeed, large numbers of married parents, especially in Paris, sent their newborns to distant rural wetnurses where huge numbers died.²⁶ French medical administrators, too, had a poor view of the rural wetnurses and held them responsible for the foundlings' high death rate.²⁷

This view is reflected in the report of the medical committee of the province of Cremona, in northern Italy, which blamed the high infant mortality rate there on 'the ignorance of our peasant population, especially the women, and on the absence of any instruction, care or vigilance in raising and taking care of babies they are nursing or those who have been weaned'.²⁸

Notwithstanding, however, these attempts to look elsewhere for an explanation of the fearsomely high mortality rate among foundlings, by the mid-nineteenth century attention focused on what happened to the foundlings at the foundling homes themselves. As the Naples experience demonstrated, and as foundling home officials themselves noted, babies who were slow to be placed with external wetnurses were much less likely to survive. The problem faced by foundling home officials was placing the babies with external wetnurses as soon as possible, despite the financial constraints they all faced in being able to entice women into becoming wetnurses.

Foundling homes generally set two nursing infants per internal wetnurse as their goal, but this was not generally attained. In Bologna, even by 1880, several babies often had to share each internal wetnurse.²⁹

Foundling homes that found themselves inundated with newborns, as many did in the period between 1830 and 1870, or that were left with inadequate budgets desperately turned to various methods of artificial feeding to keep the babies alive. Throughout this period, the results of these attempts were uniformly disastrous. Typical was the experience in the northern city of Brescia in 1845, when in the summer the lack of wetnurses led the foundling home to rely almost exclusively on goats' milk. Two goats were kept in the foundling home for this purpose, although infants were also fed a pabulum made of cow's milk, biscuit,

flour and sugar. The result was that of the 200 foundlings taken in, 122 died in their first month.³⁰ Similarly, Florence foundling home officials turned to these methods in 1863. The result, according to the medical inspector, was that 'hardly any foundling's life was saved, other than the most healthy, vigorous and robust, and it did not contribute to even their survival beyond a few days, or at the most a few weeks'. Of 114 babies fed goat's milk, 79 quickly died and the others were saved only because, after a few days, they were assigned to wetnurses.³¹

Conditions in the foundling homes, then, were clearly less conducive to infant survival than were conditions with external wetnurses. But available statistics on foundling infant mortality inside and outside the foundling homes must be treated with caution. We can illustrate this by citing the report of the two directors of the foundling home of Udine, in northeast Italy, in 1822:

In the past ten years, 1812-1821, 1,936 children were admitted to the institute, of whom 780 were sent out to the province [i.e., to rural wetnurses]. Of these last, 189 were returned to the foundling home, thus leaving 1,347 there in all. Of these, seven were saved, thus resulting in a mortality rate of 99 $\frac{3}{4}$ %. What an unheard of massacre! Of the 591 who were left in the province, 149 died, or 25 per cent ... What use is it to keep severe laws against infanticide in effect if a certain death - and one much more painful - awaits the illegitimate children in a foundling home?³²

There are two principal problems in using these kinds of figures in judging the impact of internal versus external care for the foundlings. First, women who came to pick up a child for external wetnursing were typically given a choice of which baby to take. Naturally, they chose the babies who appeared the healthiest and most vigorous (an impulse magnified by the concern to avoid taking a baby that might prove to be syphilitic). This, of course, meant that the healthiest babies ended up going out at the youngest ages, while sickly babies proved difficult or impossible to place.³³

Secondly, when a rural wetnurse discovered that the infant she had been given was sick, and especially if it appeared to have a contagious disease or to be deathly ill, she was often inclined to return it to the foundling home, which was bound to take it. As the Bologna foundling home report for 1865 observed: 'Note that a certain number of those [nursing infants] who fall sick outside the foundling home (over 80 in 1865), having been sent back to the foundling home, inflate the figure for mortality inside the foundling home.'³⁴ These effects, selective placement and selective return, no doubt appreciably raised the mortality rate inside the foundling homes, and bring up the question of just how much less healthy the foundling home environment was for the infant than the environment found with external wetnurses.

INFANT MORTALITY AMONG BOLOGNA FOUNDLINGS

In looking at the evolution of foundling infant mortality in nineteenth-century Bologna, we focus on the three most significant periods: the French occupation at the beginning of the century; the following decades of Restoration of the *ancien régime* (i.e., rule by the Papal States); and finally the emergence of the unified Italian nation. Toward this end, we have constructed data files on all babies abandoned at the Bologna foundling home in the years 1809–1810 (representing Period One: French occupation; N = 889; 1829–1830 and 1849–1850 (representing Period Two: Restoration; N = 1,518),³⁵ and 1869–1870 (representing Period Three: Unification; N = 1,208). These data files follow the lives of each of these children through their first year (and, indeed, until age fifteen for boys and until marriage for girls).

What we find is that the dislocations associated with the arrival of the French troops produced a heightened abandonment of babies. After a drop in abandonment immediately following the Restoration, abandonment began to climb again. In our first period, 450 babies were left at the Bologna foundling home each year, with 380 per year in the years of our second period, and 604 per year in our third.³⁶

In the first years of the nineteenth century, Bologna proved no exception to the pattern throughout Italy in which babies left at foundling homes were at least twice as likely to die in infancy as other babies. There was, however, substantial improvement in the survival chances of foundlings over the course of the decades under study here, accelerating around the time of Unification. In 1809–1810, during the French occupation, over 70 per cent of all foundlings died before their first birthday, a figure that declined to about 57 per cent in our middle period (the Restoration) and then fell substantially to 37 per cent by 1869–1870. Thus, infant mortality was reduced by nearly 50 per cent among the foundlings over a period in which there was a much more gradual decline in the general population (from an IMR of 319 in the Bologna province in 1811–1812 to 256 in the Emilia region in 1863–1870).³⁷ Clearly, the system had been greatly improved by the time of the first years of the new Italian state.³⁸

Since this period comes before healthy artificial feeding was available, and since there was no increase in legitimate babies being abandoned in Bologna, we must suppose that this improvement is attributable to one or more of four factors: firstly, improvement of the health of the baby at the time of arrival at the foundling home;³⁹ secondly, improvement in the internal wetnursing situation; thirdly, improvement in the speed with which foundlings were placed with external wetnurses; and fourthly, improvement in the care provided by external wetnurses.

TABLE 3
Mortality risks for Bologna foundlings by period, first month vs. next eleven months^a

<i>Months</i>	<i>1809-1810</i>	<i>1829-1850^b</i>	<i>1869-1870</i>
0	0.243	0.269	0.178
1-11	0.464	0.296	0.194
0-11	0.706	0.566	0.372
% of all infant deaths occurring in first month	34.4	47.5	47.8

^a The mortality risks are expressed as the proportion of all abandoned babies left alive at the foundling hospital who died within their first month of life and the proportion who died aged more than one month but less than one year.

^b Consists of the years 1829-1830 and 1849-1850.

Source: Bologna foundling home data base.

In evaluating the nature of the mortality disadvantage of foundlings it is worth breaking down their first year into two segments: the first month and the following eleven months. The first month was the time of internal wetnursing and the period in which the great majority of foundlings (80-90 per cent) who would be placed with external wetnurses were in fact placed. This is also the standard demographic division employed in infant mortality studies, sometimes identified with a distinction between 'endogenous' and 'exogenous' infant mortality, corresponding to a distinction between an initial period in which much of the mortality is due to constitutional factors and a second period in which environmental factors are paramount.⁴⁰

In Table 3 we present the life table mortality risks for Bologna foundlings in their first month and then in their subsequent eleven months, divided into our three periods. The steady decline in overall infant mortality from period to period is put in a different light by this breakdown, for the mortality improvement experienced from the period of the French occupation to the subsequent Restoration is entirely attributable to a substantial improvement in the experiences of babies over a month old (whose mortality rate was 36 per cent lower in the second period than the first). No improvement occurred from Period One to Period Two in the high rate of mortality of foundlings in their first month (indeed, the rate increased slightly). This suggests that the foundling home provided no better care for the foundlings in the middle period than in the first period, with the improvement coming in the care provided by the external wetnurses.

TABLE 4

Infant mortality of foundlings in selected cities of central and northern Italy, 1823-1832, first month vs next eleven months

<i>Place</i>	<i>0</i>	<i>1-11</i>	<i>IMR</i>	<i>% 1st month</i>
Brescia	145	247	392	37
Bergamo	188	172	358	52
Bologna	248	230	478	52
Como	140	175	315	44
Cremona	260	200	460	56
Faenza	381	175	556	68
Ferrara	376	261	637	59
Forlì	314	235	549	57
Imola	216	138	354	61
Lodi	258	129	387	67
Mantua	262	206	468	56
Milan	233	203	436	53
Padua	338	191	529	64
Perugia	256	376	632	40
Ravenna	281	175	456	62
Rimini	150	211	361	42
Trieste	125	221	346	36
Venice	191	145	336	57
Verona	135	118	253	53
Vicenza	355	319	674	53

Source: Archivio di Stato di Roma, MSS 196-98, fondo Luigi Armaroli.

By contrast, the improvements that came with Italian Unification came in both the first months and subsequent months of life. Mortality dropped 34 per cent in the first month and by the same amount in the following eleven months. In all, as we see, the bulk of the decline in infant mortality from 1809-1810 to 1869-1870 was due to a decline by almost two-thirds (58 per cent) in mortality in months one to eleven, rather than the decline (26 per cent) in mortality in the first month.

Boasting of the progress made by the Bologna foundling home in the 1880s, the home's medical director, Giovanni Berti, claimed that the Bologna foundlings enjoyed as good a chance of survival as any babies after they had survived the first month or two following abandonment. Was Berti justified in this rosy view? We know that for the region of Emilia-Romagna as a whole, in the period 1863-1870, mortality in the first month stood at 140 per 1,000 live births and in the following eleven months at 116.⁴¹ Comparing these figures to the IMRs of 178 suffered by Bologna foundlings in their first month and 194 in their next eleven

TABLE 5
*Placement of Bologna foundlings with external wetnurses, and mortality
 in the foundling home*

<i>Age</i>	<i>No. dying before being placed</i>	<i>No. placed with wetnurse</i>	<i>No. still in foundling home</i>
1809-1810			
arrival			826
7 days	76	86	664
14 days	62	119	483
21 days	31	70	382
28 days	14	23	345
60 days	60	18	267
90 days	97	9	161
120 days	60	0	101
150 days	21	3	77
180 days	18	0	59
1 year	24	1	34
after 1 year	32	2	0
1829-1830 and 1849-1850			
arrival			1,407
7 days	132	355	920
14 days	111	298	511
21 days	60	135	316
28 days	37	71	208
60 days	47	89	72
90 days	14	12	46
120 days	9	4	33
150 days	2	2	29
180 days	1	1	27
1 year	2	3	22
after 1 year	17	5	0
1869-1870			
arrival			1,142
7 days	55	382	705
14 days	51	291	363
21 days	24	91	248
28 days	16	42	190
60 days	16	93	81
90 days	4	37	40
120 days	2	14	24
150 days	0	1	23
180 days	0	3	20
1 year	1	4	15
after 1 year	6	9	0

Source: Bologna foundling home date base.

TABLE 6

Cumulative proportion of infants left alive at the Bologna foundling home who were placed with an external wetnurse

<i>Age</i>	<i>Cumulative percentages of foundlings placed with an external wetnurse</i>		
	<i>1809–1810</i>	<i>1829–1850^a</i>	<i>1869–1870</i>
7 days	10.9	26.4	34.2
14 days	27.6	51.8	62.4
21 days	38.5	65.3	72.2
28 days	42.2	73.6	77.0
60 days	45.6	86.3	88.8
180 days	49.4	90.7	96.7
1 year	50.5	91.8	97.3

^a Consists of the years 1829–1830 and 1849–1850.

Source: Bologna foundling home data base.

months, we see that the foundlings' survival disadvantage was especially modest at exactly the stage (the first month) when we would expect it to be greatest. Indeed, by 1869–1870 the foundlings' mortality disadvantage was relatively greater (67 per cent) in the subsequent eleven months of life than it was in the first (27 per cent). In general, what is impressive is the considerable reduction in the mortality disadvantage of Bologna foundlings in a period when they were still entirely dependent on wetnurse care.

Returning to the middle period, which saw the northern foundling homes in their heyday, we can use data provided by the unpublished study of Luigi Armaroli to put Bologna's experience in the larger context of the major foundling homes in the Papal States and the Lombardy-Veneto area (see Table 4). These suggest that Bologna's experience in the Restoration period of having half its foundling infant deaths occur in the first month of life was quite typical, although, as we see, the range of infant mortality among foundling homes was large.

In trying to understand what was behind the improvement in the mortality experience of foundlings during the course of the nineteenth century, we looked into the speed with which the babies were placed with external wetnurses. We would anticipate that a decline in mortality was linked to an increase in the speed with which the babies were placed in family settings in the countryside.

Table 5 looks at each cohort of incoming live babies and the speed to placement or death.⁴² Looking at the first period, for example, we see that

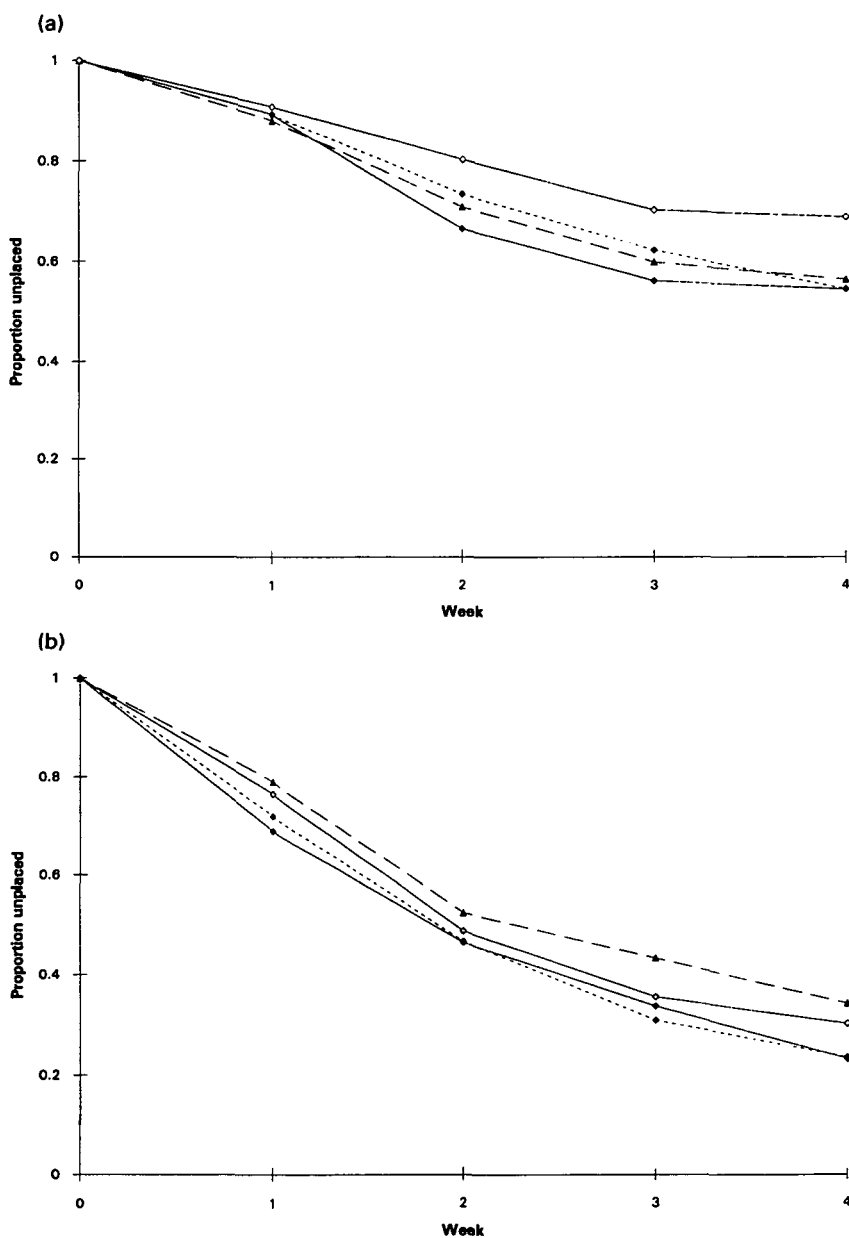


FIGURE 1. For legend see facing page.

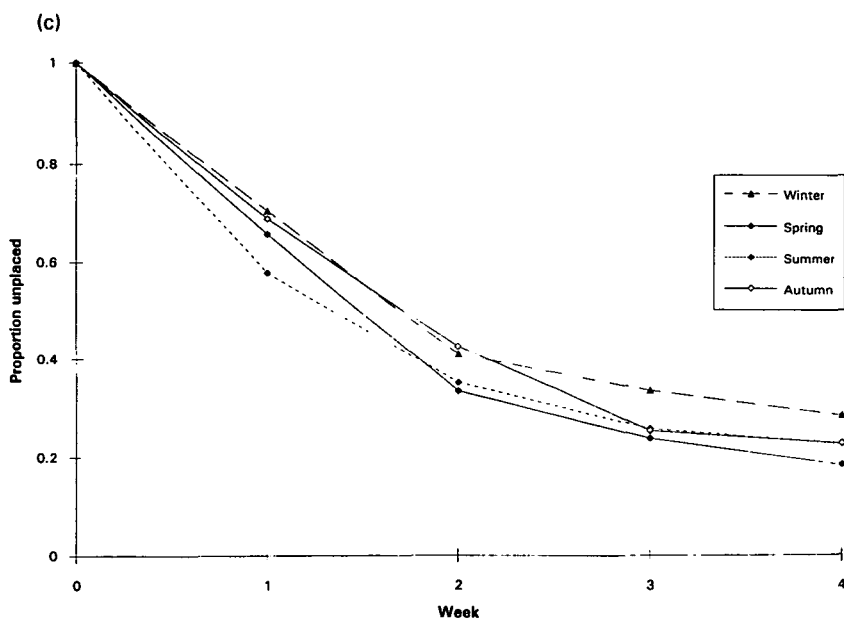


FIGURE 1. Duration to placement with external wetnurse: Bologna foundlings, (a) 1809–1810, (b) 1829–1830 and 1849–1850 and (c) 1869–1870.

of 826 foundlings, 76 died in the foundling home in the first week of life, while another 86 were placed with an external wetnurse during their first week, leaving 664 babies in the foundling home at the end of their first week. If we look at the pace of external placement of foundlings in the first period, we find 42 per cent still living in the foundling home after one month, compared to only 15 per cent in our middle period, and 17 per cent in our final period. In that first period, 22 per cent had died by four weeks of age without ever leaving the foundling home, compared to 24 per cent in the second period and 13 per cent in the third period. Clearly, deaths in the first month of age were overwhelmingly deaths that occurred in the foundling home.

In Table 6 we show the changing tempo with which the foundling home was able to place babies with external wetnurses. Looking back at Table 3, what is striking is that although the foundling home had considerably greater success in the second period in placing the children in their first month of life this success is not reflected in much better survival experience for the children. Looking at Tables 5 and 6 together, we see, however, that difficulties in placing the children in the first period led to large numbers of babies dying at ages over one month without ever having left the foundling home. In all, the foundling home then only succeeded

in placing 51 per cent of the abandoned babies within a year's time (net of those who died), compared to 92 per cent in the second period and 97 per cent in the third.

Another perspective on speed to wetnurse placement is afforded by adopting a survival analysis approach, focusing on the crucial first month of life (see Figure 1). The figure shows the proportion of babies, from birth and for each week until the age of one month, who remained at the foundling home (controlling for mortality). It also examines possible seasonal differences in the speed with which babies are placed externally. As we would expect from the above discussion, the figure shows a progressive and substantial improvement in the foundling home's ability to place the babies, indicated by the steepening descent of these curves.

Interestingly, though, there is no support here for the argument that placement was easiest in the months when rural women were least busy with their agricultural activities. We might expect to find that there was a greater relative availability of wetnurses in the winter, when agricultural activities, especially in the hills and mountains where most wetnurses lived, were least demanding, and when the need for outside income was presumably greatest. Yet, in our first period (1809–1810), when seasonal differences were greatest, and statistically significant ($p = 0.03$), the major difference involved the apparent difficulty of finding wetnurses in the autumn (when only about 20 per cent of the infants were placed within the first two weeks). By contrast, in our next two periods, the winter was the season when placement was slowest.⁴³

This suggests an alternative view of the relationship of season to ease of wetnurse recruitment, one that looks beyond family economic factors to problems of transportation. Given the remote location of most of the wetnurses, the prospect of travelling to the foundling home in the city of Bologna in the winter, and then travelling back with an infant, must be considered as a serious disincentive. That the offer of wetnurse labour was not even lower than it was in the winter may be seen as due to the counterbalancing effects of labour demands in the agricultural economy.

Sex bias in infant mortality

Much has been made of the disadvantage faced early in life by female foundlings, with the presumption that males were viewed as more desirable as foster children, given their presumed greater economic value in the agricultural economy. In this view, women who came to the foundling home to select a baby would be presumed more likely to choose boys.

The Bologna evidence does not support this view of sex bias. The

TABLE 7
Bologna foundling home infant mortality, by sex and period (cumulative deaths per 1,000)

<i>At birthday:</i>	<i>1809-1810</i>		<i>1829-1850^a</i>		<i>1869-1870</i>	
	<i>M</i>	<i>F</i>	<i>M</i>	<i>F</i>	<i>M</i>	<i>F</i>
1 month	272	216	293	247	200	154
1 year	741	676	582	550	395	348
2 years	823	770	642	620	480	438
4 years	848	812	674	658	502	471

^a Consists of the years 1829-1830 and 1849-1850.

Source: Bologna foundling home data base.

differences found in infant mortality by sex go along with what is known to be the general survival advantage enjoyed by girls, and are identified in particular with their greater likelihood of surviving the first month of life.

In Table 7 we show sex differences in infant mortality in the Bologna foundling home (divided between the first month and the rest of the first year), as well as mortality by the ages of one and two. In all three periods, girls enjoyed a mortality advantage over boys, and in all cases this is attributable to their greater hardiness in the first month of life. Indeed, males suffered from a quarter to a third higher rate of mortality during their first month. However, this female advantage quickly diminished so that, by the children's fourth birthday, male mortality stood at no more than 7 per cent above the cumulative level of female mortality.

Analysis of speed from birth to placement with an external wetnurse reveals no indication that boys were more easily placed than girls. In fact, in 1869-1870 girls were actually significantly more quickly placed. However, given that many of the wetnurses had no plan to keep the babies until later childhood, it should not be surprising that no bias against females is found at this stage. More revealing will be analyses of the later childhood experience of foundlings in being kept by foster parents or returned to the foundling home's care (planned for subsequent publications).

Seasonal effects on infant mortality

Much has been written about the impact of season of birth on infant mortality. Winter has been cited as a particularly inhospitable time to be born in colder climates, while summer is thought to be unhealthy in warmer climates. More generally, the two great killers of babies in the

past, respiratory and gastrointestinal infections, are more common in certain seasons (typically cold winters for respiratory and hot summers for gastrointestinal). However, the links here are complex, not only dependent on the peculiarities of a particular area's climate, but also on the age at which the baby entered the season. Hence, it is not simply a matter of the season of birth, *per se*, but of the season at which different portions of the first year of life are entered. The winter baby not only faces the respiratory infections that afflict newborns, but also may begin to take food other than breastmilk at just the time when summer increases the risk of bacterial infection.

A further level of complication is added in the case of foundlings, for here the season is also potentially associated with the ease of finding a wetnurse. The greater the availability of wetnurses to take in foundlings, the lower their mortality should be, as they spent less time in the foundling home. To examine these relationships further, we show in Table 8 the mortality experience of foundlings born in each of our three periods, by season born. The results show considerable changes over the three periods.

In 1809–1810, what is striking is how few seasonal differences are found. As we would expect, those born in the winter suffered the highest mortality in their first month, yet this was compensated for by better than average survival in subsequent months. Also as might be expected, the summer babies showed the most favourable survival experience in their first month, yet very high death rates in their next two months (when 38 per cent of them died).

In our middle period, represented by the years 1829–1830 and 1849–1850, the first-month mortality disadvantage of the foundlings born in the winter was even greater, over twice as great as in any other season, a difference so large that the relatively favourable experience of the survivors of the first month could not make up for it. Notable also in both of our first two periods is the unfavourable experience of the summer births in months one to five. Autumn and winter appear to be difficult periods for all infants, regardless of the age at which they meet them. While the reasons for this negative experience are fairly clear for winter, autumn is more difficult to explain. We can only surmise that the extent to which women were required to work in the fields during the harvest had a negative impact on the babies they nursed.

Finally, in 1869–1870, the disadvantage of the winter births continues, while the experience of the summer births is now much more favourable: indeed their IMR has dropped dramatically from 579 to 320 per 1,000. These seasonal differences show a rough correspondence, though at considerably higher levels, to those found for Italian births as a whole in

TABLE 8
*Bologna foundling infant mortality by season of birth^a and time period
 (expressed as percentage of the original cohort)*

(a) 1809-1810				
Age (months)	Winter	Spring	Summer	Autumn
0	37.4	21.4	11.9	27.8
1-2	15.8	21.8	38.1	22.2
3-5	11.0	19.3	20.8	15.7
6-11	3.7	6.3	2.5	7.1
IMR ^b	679	689	733	727
(b) 1829-1830 and 1849-1850				
Age (months)	Winter	Spring	Summer	Autumn
0	50.4	21.8	12.7	22.6
1-2	8.1	8.8	20.1	14.5
3-5	5.8	7.8	19.2	11.1
6-11	4.3	6.1	5.9	9.3
IMR ^b	686	445	579	575
(c) 1869-1870				
Age (months)	Winter	Spring	Summer	Autumn
0	23.6	15.9	10.0	20.9
1-2	11.6	4.5	11.2	6.5
3-5	2.7	7.3	3.9	6.9
6-11	5.8	5.1	7.0	5.8
IMR ^b	438	328	320	401

^a Winter = December-February; Spring = March-May; Summer = June-August; Autumn = September-November.

^b IMR = number of deaths per 1,000 infants.

Source: Bologna foundling home data base.

these years. Breschi and Livi Bacci⁴⁴ report an IMR per 1,000 for all Italian births in 1872-1879 by season of birth as follows: winter 246; spring 194; summer 190; autumn 218.

In Figures 2 and 3 we are able to be more precise about seasonal differences in infant mortality, by looking separately by month (rather than season) of birth and by comparing the first month of life against the whole of the first year for our three periods. Figure 2, depicting the proportion dying in their first month of life, shows rather similar patterns in all three periods, while also making clear the sharp decline in seasonal

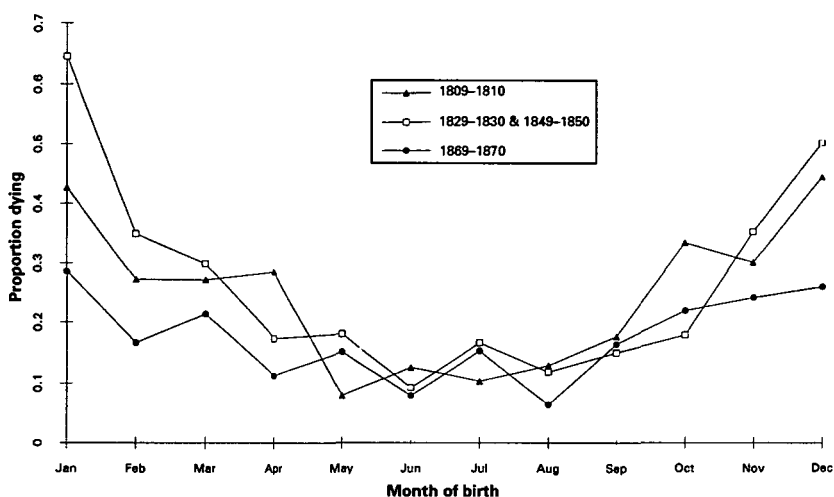


FIGURE 2. Proportion dying in first month of life by period: Bologna foundlings.

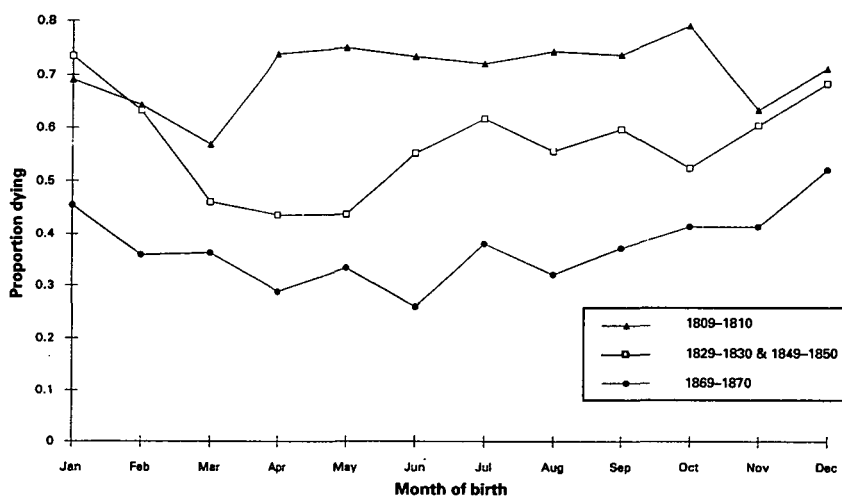


FIGURE 3. Proportion dying in first year of life by month of birth and period: Bologna foundlings.

effects found by the third period. Figure 3, by contrast, shows much less monthly variation in infant mortality when the whole first year is taken into consideration.

MULTIVARIATE ANALYSIS OF FACTORS AFFECTING INFANT MORTALITY AMONGST FOUNDLINGS

Finally, we can jointly examine the collective effects of sex, time period and season of birth on infant death by using multivariate techniques. Such methods allow us to measure the effect of a particular characteristic of the foundling, while controlling for other effects.

These techniques also allow us to examine the potential impact of two other variables: firstly, the way in which the infant was left at the foundling home; and, secondly, whether the required fee was paid upon abandonment. These two variables are of interest because they permit us to differentiate among the family characteristics of babies left at the foundling home, and allow us to inquire into whether these affected their survival.

Although a wheel existed in Bologna throughout the nineteenth century (indeed, there is mention of a wheel at the Bologna foundling home by the late sixteenth century), its use was discouraged.⁴⁵ The wheel was apparently placed under surveillance to ensure both that married women did not leave their babies there and that the illegitimate babies deposited at the home were accompanied by the required fee. Anonymity of the unwed mothers was protected, then, not by abandonment at the wheel, but by the fact that the baby was brought to the foundling home by an intermediary (usually a midwife) who did not report the parents' names.

Accordingly, in our first period, only 7 babies were left at the wheel, a number that increased substantially (to 56 by 1849–1850 and 104 in 1869–1870) in subsequent years, but always remained a fairly small minority of all those admitted. These were babies most likely born in or near the city of Bologna without benefit of a local midwife, suggesting furtive and/or impoverished births, or abandonment of a legitimate child. We might well expect such children, excluding the legitimate babies, to be in poorer condition than others.

The payment variable refers to the fact that a payment of a significant fee (15 lire) was required upon leaving a baby at the foundling home. Those mothers who failed to provide such a fee were subject (except in our last period) to forced service as wetnurses inside the Bologna foundling home for a period of one year. Only the most socially isolated or impoverished women would fail to provide this fee, given the con-

sequences. We might then expect that such babies would be in worse health than the others.

We have chosen to use Cox (partial likelihood) proportional hazards models. This statistical method offers a way to make the most of duration data, such as an infant's life span, while introducing several covariate, or independent variables. It has the advantage of enabling us to express the relative impact of each variable in terms indicating what proportion the rate of occurrence of the dependent variable rises or falls.⁴⁶

We estimate two models. Our first (the results of which are shown in Panel (a) of Table 9) looks at the impact of the following factors on foundling infant mortality: sex (males compared to a reference category of females); season of birth (spring, summer, and autumn expressed in comparison to the reference category of winter); whether left at the wheel or not (expressed as the likelihood of death of those left at the wheel compared to those who were not); and whether a payment was left with the baby (using those left without a payment as the reference group). We also include the impact of the time period.⁴⁷

As we would expect from the bivariate analyses discussed above, the gender differential is quite visible in Model 1. Male foundlings experienced a death rate almost 20 per cent ($= e^{0.174}$) higher than females. We see here too the disadvantage suffered by foundlings born in the winter: all the other seasons have negative and statistically significant coefficients associated with them (and hence a lower hazard of mortality). Babies born in the spring show the lowest mortality, a relative risk 75 per cent of that for winter babies. All of the seasons reveal significantly lower mortality experience than winter, though the autumn differs the least.

On average, babies abandoned at the wheel did have a somewhat higher mortality than the other foundlings, but, for our whole period, the difference was not statistically significant. Interestingly, though, babies left at the wheel in our last period show a 50 per cent higher mortality risk (results not shown), a period difference we are investigating at present.

Babies left with payment or firm promise of payment did fare better (relative risk 0.88) than those left without payment, controlling for sex and season. Both payment and wheel effects are highly significant in the final period ($p < 0.02$), seemingly pointing to the development of more differentiation in the effects of the family background of abandoned babies by 1869–1870.

Finally, we can examine the coefficients measuring the period differences themselves. As would be expected from the life tables presented earlier, the relative risk of mortality in the intermediate period was about 27 per cent lower than in 1809–1810, and the relative risk was lower still in the final period ($0.49 = e^{-0.714}$). This last result means that, controlling for all the

TABLE 9
Cox proportional hazards models of infant mortality among Bologna foundlings

<i>Covariates</i>	<i>Coefficient</i>	<i>p</i>	<i>Relative risk</i>
(a) Model 1			
Sex (ref. female)			
Male	0.174	0.000	1.190
Season (ref. winter)			
Spring	-0.272	0.000	0.762
Summer	-0.162	0.005	0.850
Autumn	-0.125	0.028	0.882
Wheel (ref. not at wheel)			
Left at wheel	0.100	0.272	1.105
Paid fee (ref. not pay)			
Paid fee	-0.131	0.014	0.877
Period (ref. 1809-1810)			
1829-1830 and 1849-1850	-0.318	0.000	0.728
1869-1870	-0.714	0.000	0.490
(b) Model 2			
In foundling home (ref. placed with external wetnurse)	1.17	0.000	3.222
Sex (ref. female)			
Male	0.167	0.000	1.180
Season (ref. winter)			
Spring	-0.220	0.000	0.803
Summer	-0.140	0.019	0.869
Autumn	-0.144	0.015	0.866
Wheel (ref. not at wheel)			
Left at wheel	0.138	0.163	1.148
Paid fee (ref. not pay)			
Paid fee	-0.052	0.350	0.949
Period (ref. 1809-1810)			
1829-1830 and 1849-1850	0.043	0.414	1.044
1869-70	-0.427	0.000	0.652

Source: Bologna foundling home data base.

other effects in the model, babies born in 1869–1870 were only half as likely to die as comparable foundlings of 1809–1810, as shown in the relative risk column for Model 1 in Table 9.

In Model 2, we introduce a variable allowing us to measure the impact of the speed of placement with an external wetnurse. As we would expect from our earlier analyses, the risk of dying for infants remaining in the foundling home was much greater than for those who had been placed with wetnurses. Indeed, the coefficient of 1.17 on the 'In foundling home' variable indicates that the former suffered a mortality rate over three times that of the latter.

This variable allows us to determine the extent to which the seasonal differences in mortality documented above were produced by seasonal differences in the difficulty of finding an external wetnurse. Comparison of the coefficients for season of birth in Models 1 and 2 reveals that some of the seasonal differences in mortality, in particular those for spring- and summer-born babies, are in fact due to seasonal differences in the availability of external wetnurses. However, even net of these differences, we continue to find significant seasonal differences in foundling infant mortality.

CONCLUSIONS

Were critics of the time justified in branding Italian foundling homes as 'slaughter-houses' and infant abandonment as tantamount to infanticide? And can the ultimate movement to dismantle the foundling home system (largely coincident with national Unification) be attributed to a worsening of the mortality amongst foundlings?

As we have seen, mortality among babies abandoned in Italy varied tremendously both through time and across space. In some areas and in some times, abandonment could be considered tantamount to infanticide, but clearly this was not the case in general.

The answer to this second question is also negative. As the example of the Bologna situation suggests, in a number of major cities (most notably Milan) the foundling homes had, by the 1860s, dramatically improved their capacity to keep their little charges alive. Note, too, that this improvement came decades before safe artificial feeding was introduced. The system, in short, remained dependent on the recruitment of wetnurses.⁴⁸

The reasons for the dramatic improvement in foundling infant mortality in Bologna seem to lie primarily in the increased ability of the foundling home to place the infants quickly with external wetnurses, though by the time of Unification the foundling home also seems to have improved its ability to keep small infants in the foundling home alive. The drive to close

down the foundling homes, or at least to put an end to anonymous abandonment, had sources other than simply a concern for infant survival.⁴⁹

ACKNOWLEDGEMENTS

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ENDNOTES

- 1 The best overview of the nature of European infant abandonment in this earlier period is John Boswell, *The kindness of strangers* (New York, 1988).
- 2 See David I. Kertzer, 'Child abandonment in European history', *Journal of Family History* 17 (1992), 13–19, and David Ransel, 'Child abandonment in European history: a symposium', *Journal of Family History* 17 (1992), 19–23.
- 3 Luisa Dodi Osnaghi, 'Ruota e infanzia abbandonata a Milano nella prima metà dell'ottocento', in G. Politi, M. Rosa and F. Della Peruta eds., *Timore e carità. I poveri nell'Italia moderna* (Cremona, 1982), 428.
- 4 Leonardo Trisciuzzi and Diana De Rosa (*I bambini di Sua Maestà: esposti e orfani nella Trieste del '700* (Milan, 1986), 75) argue that before the nineteenth century the main concern of the authorities in Italy about foundlings' deaths lay in ensuring that the wetnurses did not continue to receive payments, along with concern for the cost of funerals. With the new century, 'the death of the child becomes the central moment in the functioning of the institution and how to prevent it becomes an object for reflection'.
- 5 David I. Kertzer, *Sacrificed for honor: Italian infant abandonment and the politics of reproductive control* (Boston, 1993).
- 6 An excellent overview of the European situation, with figures for levels of infant abandonment, is provided by Volker Hunecke. 'Intensità e fluttuazioni degli abbandoni dal XV al XIX secolo', in *Enfance abandonnée et société en Europe XIXe–XXe siècle* (Rome, 1991), 27–72. Other chapters in that volume detail the systems of infant abandonment found in France, Belgium, Russia, Spain, Portugal and Austria. For recent sources in English, see, among others: for Portugal, Isabel Dos Guimarães Sá, *The circulation of children in eighteenth-century Southern Europe: the case of the foundling hospital of Porto* (unpublished D.Phil. thesis, European University Institute, Florence, 1992); for France, Rachel Fuchs, *Abandoned children: foundlings and child welfare in nineteenth-century France* (Albany, 1984); for Russia, David Ransel, *Mothers of misery: child abandonment in Russia* (Princeton, 1988); for Spain, Joan Sherwood, *Poverty in eighteenth-century Spain: the women and children of the Inclusa* (Toronto, 1988); for Ireland, Joseph Robins, *The lost children: a study of charity children in Ireland, 1700–1900* (Dublin, 1989).
- 7 The difference between the two systems was dramatically illustrated by Guglielmo Tocci (*Gli esposti e l'organizzazione della carità pubblica della Provincia di Cosenza* (Bari, 1878), 58), who tells that of the 1,200 babies abandoned every year in the southern

province of Cosenza in the 1870s, half were sent to the Cosenza foundling home and half were sent directly by rural mayors to local wetnurses. Of those sent to the foundling home, he claimed, 90 per cent died in their first year, compared to just 25 per cent of those sent directly to wetnurses.

- 8 Giovanna Da Molin, *L'infanzia abbandonata in Italia nell'età moderna* (Bari, 1981), 109–10. On infant mortality in Naples, see also Nicola De Crescenzo, *I brefotrofi e la esposizione dei bambini* (Naples, 1873), 224–32, Jessie White Mario, *La miseria in Napoli* (Florence, 1877), 91–2, and Pietro Stella and Giovanna Da Molin, 'Offensiva rigoristica e comportamento demografico in Italia (1600–1860)', *Salesianum* 40 (1978), 3–55.
- 9 For an example of the search for these qualities, see G. Bruscoli, *Lo Spedale di Santa Maria degl'Innocenti* (Florence, 1900), 207–8, on the Florentine *ospizio*.
- 10 The impact of measures taken later in the nineteenth century against the spread of syphilis in delaying foundling placement in Florence, with negative consequences for foundling survivorship, is described in P. P. Viazzo, M. Bortolotto and A. Zanotto, 'Child care, infant mortality and the impact of legislation: the case of Florence's foundling hospital, 1840–1940', *Continuity and Change* 9 (2), 1994, 243–69.
- 11 The movement to close the wheels and the foundling homes is discussed in Kertzer, *Sacrificed for honor*, 154–69.
- 12 The existence of this extremely valuable archival source was first brought to my attention by the paper of Eugenio Sonnino, who has previously used this source to examine the topic of mortality among abandoned babies in Italy in this period. Eugenio Sonnino, 'Esposizione e mortalità degli esposti nello Stato Pontificio agli inizi dell'Ottocento, secondo le statistiche raccolte da Leopoldo Armaroli', in *Enfance abandonnée et société en Europe XIVe–XIXe siècle. Actes du colloque* (Rome: Ecole Française de Rome, 1991), 1065–6.
- In calculating IMR for foundling homes, we try to exclude those babies who are left dead at the foundling homes. In some cases we must rely on statistics where it is unclear how such infants were treated.
- 13 Aurora Angeli, 'Caratteristiche, mortalità ed inserimento sociale degli esposti nell'ospedale di Imola nei secoli xviii–xix' in P. Boutry, ed., *Enfance abandonnée*, 123–49.
- 14 Sergio Onger, *L'infanzia negata: storia dell'assistenza agli abbandonati e indigenti a Brescia nell'ottocento* (Brescia, 1985).
- 15 Guglielmo Tocci, *Gli esposti e l'organizzazione della carità pubblica della Provincia di Cosenza* (Bari, 1878), 61.
- 16 Following Unification, Italy's crude mortality rate (deaths per 1,000 population) declined from 30.3 in 1862–1871 to 23.7 in 1892–1901 (Lorenzo Del Pantà, *Evoluzione demografica e popolamento nell'Italia dell'Ottocento* (Bologna, 1984), 21).
- 17 Del Pantà, *Evoluzione demografica*, 11–15.
- 18 Sonia Residori, 'Tra demografia storica e storia della popolazione. Una comunità, una regione: Lendinare e il Veneto nell'800', *Annali Veneti, Società, Cultura, Istituzioni* 1: 1 (1984), 59.
- 19 Athos Bellettini and Alessandra Samoggia, 'Evolution differentielle et mouvement saisonnier de la mortalité infantile et enfantine dans la banlieue de Boulogne (XVIIe–XIXe siècles)', *Annales de Démographie Historique* (1983), 208–10.
- 20 *Ibid.*, 200.
- 21 Del Pantà, *Evoluzione demografica*, 55. In the 1880s, Giovanni Berti ('Ricerca fatta sulla mortalità nel 1 anno di vita dei bambini allattati dalle madri nella campagna bolognese', *Bullettino delle Scienze Mediche di Bologna* (1886), series VI, 17, 357–8), one of the medical directors of the Bologna foundling home, surveyed 667 women who

- applied to become paid external wetnurses. He found an IMR of 257 for their 2,449 live births.
- 22 The fact that unwed mothers were forced to abandon their babies did not lead to total exculpation for their doing so. In the late eighteenth century, for example, an observer of the high mortality among foundlings in Modena concluded that a woman who produced an illegitimate child was guilty of behaviour that was 'inhumane, indeed cruel'; see Lodovico Ricci, *Riforma degli istituti pii della città di Modena* (Modena, 1797), 203.
 - 23 Enrico Raseri, 'I fanciulli illegittimi e gli esposti in Italia', *Archivio di Statistica* 6: 1 (1881), 12.
 - 24 This is discussed for the Italian case in Kertzer, *Sacrificed for honor*. One finds the same observations made linking poor foundling health to unmarried women trying to abort themselves in France at the time, as by M. L. Nepveux, *De la mortalité des enfants trouvés en France, et à Rouen en particulier* (Rouen, 1851), 8.
 - 25 Giambattista Luè, *Esposti* (Milan, 1907), 59–60. In France this phase is most closely identified with abortionists.
 - 26 George D. Sussman, *Selling mother's milk: the wet-nursing business in France, 1715–1914* (Urbana, 1982).
 - 27 Jean-Pierre Baret, Corinne Dufour and Jacques Renard, 'La mort des enfants trouvés, un drame en deux actes', in *IUSSP Conference on Child and Infant Mortality in the Past* (Montreal, 1992) (hereafter *IUSSP* 1992), 4.
 - 28 Romolo Griffini, 'Della mortalità dei bambini: della profilassi della sifilide infantile e da allattamento.' *Annali Universali di Medicina* 206 (1868), 275.
 - 29 The Bologna foundling home medical report for 1879–1882 records that while the mean number of infants in the foundling home ranged from 22 to 33 in these years, there were various times when as many as 60–70 nursing infants were present. Yet the mean number of internal wetnurses in these years remained around 12 (Emmanuele Bruers and Giovanni Berti, 'Rendiconto statistico dello stabilimento esposti e maternità di Bologna, pel quadriennio 1879–1882', *Bullettino delle Scienze Mediche di Bologna*, series 6, 16 (1885), 166).
 - 30 Onger, 'L'infanzia negata', 78.
 - 31 Gaetano Bruscoli, *Lo spedale di Santa Maria degl'Innocenti* (Florence, 1900), 153, quoting Dr Calosi's report. See also the article by Viazzo, Bartolotto and Zanutto, 'Child care, infant mortality and the impact of legislation', this volume.
 - 32 Nicolò Mantica, *L'ospizio provinciale degli esposti e delle partorienti di Udine* (Udine, 1900), 191.
 - 33 These effects are nicely described in the report of the *Statistica medica, primo saggio di statistica medica nell'interno del bresotrofo romano, anno 1867–1868* (Rome, 1869), vi, regarding the Roman foundling home.
 - 34 From the archives of the Archivio Storico Provinciale di Bologna, Arch. Esposti, 22 January 1866, 'Risposta ai quesiti intorno agli esposti... della Prefettura di Bologna'.
 - 35 Given the length of time covered by the Restoration, we looked at both an earlier (1829–1830) and later (1849–1850) stage. We combined these two couplets of years only after determining that the mortality patterns were similar in each.
 - 36 These figures include those babies who arrived dead. These are not counted in the various analyses of mortality and time-to-wetnurse-placement below.
 - 37 Bellettini and Samoggia, 'Evolution differentielle', 208–10, and Del Panta, 'Infant and child mortality', 16.
 - 38 Using these figures, we can say that the Bologna foundlings' infant mortality

- disadvantage declined from an IMR 121 per cent higher than that of the general population to one 45 per cent higher.
- 39 Unfortunately, we have no good information on this point, though it is possible that by our last period the availability of improved transportation might have led to fewer babies from far-flung parts of the province arriving at the foundling home in poor health.
 - 40 It has been argued, however, that deaths due to congenital problems are mostly clustered in the first few days following birth, and thus exogenous factors become a significant cause of death well within the first month. The concept of endogenous infant mortality was introduced by J. Bourgeois-Pichat in 'La mesure de la mortalité infantile', *Population* 3 (1951), 233–48. For a recent discussion of the use of the concept, see R. Lalou, 'La mortalité endogène en Nouvelle-France', *IUSSP* 1992.
 - 41 Del Panta, 'Infant and child mortality', 16.
 - 42 This analysis excludes those few children who were left at the foundling home at above the age of six days.
 - 43 Another factor which might be considered is seasonality of birth in the general agricultural population. Insofar as births show seasonal differences, of course, the number of potential wetnurses could change from season to season. However, this should only have an effect on the problem before us if illegitimate births showed a different seasonal pattern from legitimate births. This is an area that needs to be explored further.
 - 44 Marco Breschi and Massimo Livi Bacci, 'Month of birth as a factor of children's survival', in *IUSSP* 1992, 21.
 - 45 On the early existence of the Bologna wheel, see Adanella Bianchi, 'La "famiglia" dell'Ospedale tra XVI e XVIII secolo', in Amministrazione Provinciale di Bologna, Assessorato alla Cultura, *I bastardini: patrimonio e memoria di un ospedale bolognese* (Bologna, 1990), 45.
 - 46 The Cox model is quite extensively used in demographic, biomedical settings, and has spawned a large literature. It produces a measure of the degree to which each covariate shifts the underlying hazard of infant mortality up or down. Estimation of the Cox model yields coefficients that, once exponentiated, indicate the relative risk factor for that covariate. For example, for a coefficient estimate of 0.1, the associated relative risk is $e^{0.1}$ or $e^{1.105}$, indicating that the presence of this covariate is associated with a 10.5 per cent rise in the risk of mortality throughout the observation period.
 - 47 We first separately estimated models for each of our three periods. We present this combined analysis for the sake of simplicity, but it should be recognized that pooling periods tends to average out any differences that develop in the effects of the covariates over the three periods.
 - 48 This link has also been made for the Florentine foundling home in the late nineteenth and early twentieth centuries by Viazzo, Bortolotto and Zanutto ('Child care, infant mortality and the impact of legislation').
 - 49 A discussion of these causes may be found in Kertzer, *Sacrificed for honor*. They include both a decline in the influence of the Church following Italian Unification and a fiscal crisis suffered by the new régime, which made the huge costs of the foundling system a tempting target.