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Corrado Gini's contribution to estimates of Italian military deaths in the First World War

1. INTRODUCTION

In 1926 Corrado Gini published a short study on the number of Italian military casualties in WWI, which although was not the first estimate, was the only one which took account of all the information available at the time. These calculations were instrumental to compile a roll of honour of Italian military dead, begun just after the end of the war.

Based on Gini's conclusions and considering the problems he identified about the documentation, this paper examines how the number of deaths was established as 650,000, the use Gini made of the available documentation and the critical issues that still remain regarding his reconstructions.

2. ESTIMATES OF HUMAN LOSSES IN THE FIRST WORLD WAR. CORRADO GINI'S CONTRIBUTION

Estimates of the number of human losses began to appear soon after the end of the war. The most influential was by Giorgio Mortara (1925), who calculated that 651,000 Italians had died by 30 April 1920 «the date that closed the period considered by the reparations commission for calculating war pensions» (Mortara, 1925, 29).

The following year Corrado Gini drew up *I morti dell'esercito italiano dal 24 maggio 1915 al dicembre 1918* (Italian military dead, from 24 May 1915 to December 1918) in the form of galley proofs, which estimated the number of deaths up to 10 September 1925, which was also calculated on the number of war pensions, at about 652,000¹.

Mortara primarily used the data from the Supreme Command Statistics Office, which he himself had directed, and whose accounting stopped at November 1918 for deaths through illness, and December 1920 for those from wounds. These data derived from the statistics regularly compiled in the different army corps over the course of the conflict, that the Command used to form an up-to-date evaluation of their military force. In order to arrive at his final count, Mortara integrated these data with the number of deaths through illness

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¹ Gini also wrote a number of other works on the war, some of a demographic nature (Gini and Livi, 1924). For a more extensive bibliography see Prévost, 2015.

from the biennium 1919-20 that was provided to the Commission for War Reparations from the War Pensions Office.

Gini, however, principally used data from the Army's Demographic Statistics Office (then War Losses Statistics Office), that he himself had directed. He integrated these data with those from the Supreme Command Statistics Department (the same data of Mortara) and further information from the Prisoners Office and the Office of Sanitary Statistics. Gini also used data on war pensions to arrive at his final count.

Even if the two authors' final calculations of military deaths are practically the same, we should observe that the time intervals that they took into account are different. If we superimpose, where possible, their estimates on the same time grid, the concordance of the figures results as more apparent than real (Table 1).

Table 1 – *Italian military deaths according to Mortara and Gini at different dates*

	31 December 1918	30 April 1920	Final count
Mortara	625,000	651,000	651,000
Gini	575,000	615,000	652,000
Difference	50,000	36,000	-1,000

Sources: Mortara, 1925, 29, 31; Gini, 1926, 18.

Note: final count in Mortara, 30 April 1920; in Gini, 10 September 1925.

The greatest discrepancy between the two estimates is found at the earliest date, whereas they differ only slightly in 1920 and almost coincide in the final count. Inevitably, the sequence of the figures, opens some questions on the "real" number of military deaths, that have until now been essentially based on the work of Mortara, while that of Gini is much less known.

Gini's work formed part of a much grander project published by the War Ministry, *Statistica dello sforzo militare italiano nella Guerra mondiale* (Statistics of the Italian military effort during the World War) which aimed to reconstruct the military operations and role of the army during the conflict. The initial plans were that after the compilation of all the volumes of the work, the information collected would be used to integrate and amend the existing series of texts, and only then would the whole *Statistica* be officially released. The most ambitious of these projects was the *Albo d'oro dei caduti della Guerra*, a roll of honour which recorded all the names of Italian soldiers who died during or for reasons directly linked to the conflict, and was carried out by colonel Fulvio Zugaro, the head of the War Ministry's Statistics Office. The first of the total of 28 volumes was published in 1926, the last in 1964.

Although it was known that the data published previously was not definitive, it was generally believed that the results to emerge from the *Albo d'oro* would be largely coherent with them and that few amendments would need to be made (Zugaro, 1927, XIV). This faith rested on the accord of previous reconstructions, in particular, those of Mortara and Gini.

This detailed publication, of which Gini's work was the start and the *Albo d'oro* the end, did not reach its foreseen conclusion, which would have been impossible in any case. The *Albo d'oro* records a total of 529,025 names, which is well below the expected figure. On closer inspection, the expectations of the time were not linked to either Gini's or Mortara's calculations, which stopped at 1918, but to the number of war pensions (a common feature of both reconstructions), which is still widely considered to be the most reliable indicator of the number of military deaths (Isnenghi and Rochat, 2004). The belief in the credibility of the figure 650,000 was, and is, so deep-rooted that it has acted as a "fail-safe" point of reference for all calculations of war losses and most recently been identified as the minimum limit of the real number (Scolè, 2014). It has also been used to prove that the data of the *Albo d'oro* are unreliable, or rather of the source which, according to its creators, was supposed to ensure its reliability.

Precisely because of this conviction, the discrepancy with the data of the *Albo d'oro* has always been dismissed as due to the unreliability of this latter source, without further investigation. This situation has two possible explanations, which are not necessarily mutually exclusive: 1) the *Albo d'oro* is incomplete; 2) the datum obtained from the number of pensions is too high.

Regarding point 1, some 120,000 soldiers who had a right to a pension are thought to have been excluded from the *Albo d'oro*, although such a high number of "absent" soldiers, almost a quarter of the names actually traced, is not, in my opinion, credible, considering the vast deployment of resources used to compile this source. The datum is not even compatible with what Zugaro himself declared (1926) in a short article on the criteria by which the *Albo d'oro* was compiled, given that the documentation on pensions, on which the estimate of the war dead is traditionally based, was one of his principal sources. Clearly, if the information from the War Pensions Office gave such unequivocal results as was and is universally maintained, it is difficult to understand why many other sources were used in writing the *Albo d'oro*, which also invariably led to lower estimates.

It could be hypothesized that, after the compilation of the *Albo d'oro*, war pensions were assigned to deceased who had previously been excluded, or to soldiers who did not have the requisites to be included in the *Albo d'oro*, although neither of these explanations seem plausible. In the first case, one should find evidence of these omissions in a series of typewritten lists accompanying the *Albo d'oro* for Veneto, but they are still far too few to bridge the gap (Fornasin, 2015b). In the second, the soldiers excluded from receiving a pen-

sion, such as deserters, are precisely those who are also absent from the *Albo d'oro*. Zugaro (1926) provides some information on this phenomenon, which has allowed me to estimate the possible gaps in the source. The omissions would appear to involve about 30,000 (5.7%), bringing the sum total to 559,000 (Fornasin, 2014), which still remains much lower than the customary one.

In order to have a definitive answer regarding point 2, it would be necessary to carry out an *ad hoc* count of data from the documentation on pensions, although Gini indicates a possible and, in my opinion, credible solution to this problem. Soldiers who were married at the time of their death left the right to subdivide the pension in two parts, one for their wife and one for their parents (Gini 1926, 20). The War Pensions Office, however, conceded that the possibility of paying both pensions, «on a wide scale, was delayed», which would explain why when Gini's work and subsequently those of Mortara and Zugaro were published, it was still not clear «how much lower the number of dead would be than the number of pension applications made» (Gini, 1926, 20), which resulted in the overestimate. I hypothesise that the figure of 650,000 derived from the data of the War Pensions Office does not refer to the dead, but to the pension holders ascertained at that time². This means that the data from the *Albo d'oro* could be more complete than is commonly held.

In my opinion, the higher figure of Mortara mainly derives from the fact that he used aggregate data and maximum estimates, whereas Gini used individual data and partial estimates. In the former case it is near impossible to identify duplicated information, a problem which can only be corrected by analysing individual data, or in other words the paper files referring to each single subject. Although with the procedures in use up to that time it was possible to corroborate individual data within individual archives, it would have been much more difficult to do between different ones. An accurate comparison

² The *Albo d'oro* does not indicate the marital status of the war dead, but Gini suggests that around 40% were married (Gini, 1926, 18). On the basis of this information and using opportune life tables it is possible, using the data of the *Albo d'oro*, to estimate the number of soldiers whose wife and at least one parent survived, or in other words those who had left the right to subdivide their pension in two parts (according to my calculations, around 204,000) and the number of unmarried orphans of both parents (around 12,000) who had no heirs. The total number of entitlements would therefore amount to 721,000 (in round figures 529,000+204,000-12,000). This figure is compatible with that of 750,000 Italian war dead estimated by the International Labor Organization in Geneva in 1924 on the basis of the pension applications that had been presented up to that point (Gini, 1926, 19).

I obtained the figure of 721,000 entitlements to a pension from the soldiers from the 1895 birth cohort, that with the greatest number of war dead, and then extending this to all the others. These calculations were made under the hypothesis that the average age at birth was 25 for the mother and 30 for the father. Then, with reference to 1920, I calculated the values ${}_{25}p_x$ from the life tables (period) of 1895 of the Human Mortality Database (University of California, Berkeley (USA), and Max Planck Institute for Demographic Research (Germany). Available at www.mortality.org or www.humanmortality.de (data downloaded on 9th January 2016).

between several archives would only have been possible by uniting them and unifying the file cards, which is exactly what the *Albo d'oro* proposed. I believe that the differences between Gini and Mortara's estimates, and the data of the *Albo d'oro* are largely due to double counting.

Another important confirmation of these hypothesis comes from a recent work by Riva and Trentini (2015), which reports the number of military deaths in WWI in relation to certain municipalities in the province of Brescia. Notably, these findings come from different scholars, and from sources that are independent from the *Albo d'oro*, such as town archives, commemorative stones, monuments etc. These independent reconstructions show small differences (mean 6.0%) in the number of dead reported, for the same municipalities, in the *Albo d'oro* (Riva and Trentini, 2015, 59-61). These differences are more closely in line with my estimation for the entire source (5.7%) than the 23% gap between the *Albo d'oro* figure and that generally accepted of 650,000.

3. ANALYSIS CRITERIA AND ESTIMATE OF THE DEAD: THE CASE OF PRISONERS

One of the most consequential aspects of the estimate criteria in Italian historiography of WWI is the number of deaths amongst prisoners of war. The most widely accepted number at present is 100,000, proposed by Giovanna Procacci (1993), which derives from an estimate made by the Commission of Enquiry into Human Rights Violations by the Enemy. According to Mortara 90,000-100,000 Italians died in prison, while Gini cites 78,000. The *Albo d'oro*, on the other hand, records only 50,000, estimated from analysis of a sample from the source and confirmed by a detailed count of certain regional populations (Fornasin, 2014; 2015a; 2015b).

Gini's explanations of the criteria which led to his proposed figure illustrate the possible sources of error well. He divides deaths among prisoners of war into three categories: 1) through illness; 2) from wounds; 3) in battle. The latter were soldiers who died in combat but were buried by the Austrians and therefore recorded by non-Italian authorities. Although these deaths appear in the lists compiled by the enemy, they are not classifiable as prisoners of war, and as Gini writes «for the most part, result in our statistics among soldiers declared as dead in battle or missing in action and could not be counted as prisoners without making a duplicate». Among Gini's estimated 78,000 who died in prison, there were 11,000 who died in battle³. This brings the number of those who died in prison to 67,000, well below the generally accepted number and much closer to that of the *Albo d'oro*.

³ A significant number of these 11,000 would have already been counted in the statistics of Corps, and could therefore be counted twice.

The considerations developed by Gini can be further extended, and therefore make his estimates fall even further. Many prisoners of war will have been registered in the Corps' statistics as missing in action and therefore considered dead, when in fact they were not. Therefore, when many of these did die in custody, new records were made, generating further duplicates.

Considering all the above, I believe that the number of deaths among prisoners of war from the *Albo d'oro* is not far from the truth, although a certain number of these deaths were not included in the roll of honour because they were deserters (Zugaro, 1926).

4. CONCLUSIONS

This work investigates the quality of the data of the *Albo d'oro* regarding Italian military deaths from WWI in the light of the considerations and calculations of Corrado Gini. Generally speaking, when compared for the same period, the data reported in the *Albo d'oro* and those by Gini differ considerably. This difference can be partly ascribed to gaps in the *Albo d'oro* and partly to the many duplications in the files considered by Gini. In 1926 it would have been extremely difficult to track the same individual in different archives, since it would have necessitated a systematic perusal and reordering of all the existing files in all the different collections. The *Albo d'oro* made this mammoth task possible, but the complexity involved and outbreak of WWII considerably extended the time needed before its publication. The last volume was completed in 1964, when the conditions no longer existed to conclude, according to the original plan, the complex work that Corrado Gini had contributed to starting almost forty years earlier.

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